

***United States Court of Appeals
for the
District of Columbia Circuit***



**TRANSCRIPT OF
RECORD**

JOINT APPENDIX

IN THE

United States Court of Appeals

FOR THE DISTRICT OF COLUMBIA CIRCUIT United States Court of Appeals
for the District of Columbia Circuit

No. 18,270

JOHN O. CROUSE,

VS.

COMMISSIONER OF PATENTS,

FILED JAN 23 1964

Nathan J. Paulson
CLERK

Appellant,

Appellee.

64

APPEAL FROM THE JUDGMENT OF THE UNITED STATES
DISTRICT COURT FOR THE DISTRICT OF COLUMBIA

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United States District Court

FOR THE DISTRICT OF COLUMBIA

JOHN O. CROUSE, Marion Road, Mansfield, Ohio,
Plaintiff,

v.

DAVID L. LADD, Commissioner of Patents,
Defendant.

Civil Action No. 949-62.

Complaint to Authorize Issuance of Patent.

(Filed .)

1. This action arises under Section 145 of Title 35 of the United States Code.
2. No appeal has been taken herein in the United States Court of Customs and Patent Appeals.
3. Plaintiff, John O. Crouse, is a citizen of the United States of America, resident of the City of Mansfield, State of Ohio, whose business address is Marion Road, Mansfield, Ohio.
4. The Defendant, David L. Ladd, is the United States Commissioner of Patents, and is officially a resident of Washington in the District of Columbia, within the jurisdiction of this Court.
5. On or about February 11, 1957, plaintiff filed an application for patent in the United States Patent Office, entitled Flexible Tubing and given Serial No. 639,275.

Complaint to Authorize Issuance of Patent.

6. Claims 12 and 13 of said application to which plaintiff believes himself entitled, were finally rejected by the primary examiner and an appeal taken from his decision, the Board of Appeals affirmed said decision. The defendant has refused and still refuses to grant a patent on said application as to claims Nos. 12 and 13.

7. The claims in issue are as follows:

12. A laterally flexible, and substantially non-extensible tubular housing for a Bowdin control wire, comprising a spring wire helix whose successive convolutions are resiliently maintained in lateral, contiguous, spring pressed engagement with each other, the interior of said helix providing a slide-way on which a said control wire may be longitudinally adjusted, and a substantially thick-walled coating of a plastic material being applied over all outwardly presented surfaces of said helix, being solidified in situ, and having physical properties generally corresponding to those possessed, to a substantial degree, by a vinyl having a durometer hardness rating of D-75, said coating being closely fitted within the exteriorly presented recesses between all pairs of successive helix convolutions, to longitudinally interlock said helix and coating, said coating being substantially non-stretchable, and preventing longitudinal stretching of said helix.

13. The laterally flexible and substantially non-extensible tubular housing for a Bowdin control wire, substantially as set forth in Claim 12, and being further characterized by the limitation that the diameter of the helix wire be not substantially less than that dimension which is one-half of the diameter of the recited slideway.

8. Plaintiff alleges that the decision of the Board of Appeals adjudging the plaintiff not entitled to Letters Pat-

Complaint to Authorize Issuance of Patent.

ent for "Flexible Tubing", recited in claims 12 and 13 of said application Serial No. 639,275, was erroneous and contrary to law.

9. Plaintiff makes profert of a certified copy of the aforesaid application for Letters Patent, Serial No. 639,275, and all proceedings and papers in the file thereof, together with copies of the patents forming the basis for the aforesaid decision refusing to allow the claims and issue Letters Patent on said invention, said copies to be produced as and when this Honorable Court shall direct.

WHEREFORE, plaintiff respectfully prays as follows:

A. For a decree that plaintiff is entitled to receive Letters Patent for the "Flexible Tubing" shown and described in the aforesaid application Serial No. 639,275, in due form of law as prescribed by the Statutes.

B. For a decree pursuant to 35 U. S. C. 145 authorizing the Commissioner of Patents to issue Letters Patent on said "Flexible Tubing" in due form of law as prescribed by the Statutes.

C. That plaintiff have such other and further relief as the nature of the case may admit or require and as may be just and equitable.

Respectfully submitted,

FRANK M. SLOUGH

and

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Answer to Complaint.

Of Counsel:

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Answer to Complaint.

(Filed April 26, 1962.)

UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF COLUMBIA

JOHN O. CROUSE,

Plaintiff,

v.

DAVID L. LADD, Commissioner of Patents,

Defendant.

Civil Action No. 949-62.

Clarence W. Moore, Solicitor,
United States Patent Office,
Washington 25, D. C.,
Attorney for Defendant.

To the Honorable the Judges of the United States District
Court for the District of Columbia.

1, 2, 3, 4, 5. The defendant admits the allegations of
paragraphs 1, 2, 3, 4, and 5 of the complaint.

Answer to Complaint.

6. The defendant admits that claims 12 and 13 of plaintiff's application Serial No. 639,275 were finally rejected by the primary examiner and on appeal taken from his decision, the Board of Appeals affirmed said decision. The defendant also admits that he has refused and still refuses to grant a patent on said application as to claims Nos. 12 and 13. Otherwise, however, the defendant denies the allegations of paragraph 6 of the complaint.

7. The defendant admits the allegations of paragraph 7 of the complaint.

8. The defendant denies the allegations of paragraph 8 of the complaint.

9. The defendant admits the allegations of paragraph 9 of the complaint.

FURTHER ANSWERING, the defendant asserts that the plaintiff is not entitled to a patent containing either of claims 12 and 13 of his application involved in this civil action, for the reasons given and in view of the references cited in the Examiner's answer and the decision of the Board of Appeals in that application. Profert hereby is made of copies of the said answer, decision and references.

Respectfully submitted,

C. W. MOORE,
Solicitor, U. S. Patent Office,
Attorney for Defendant.

April 25, 1962

I hereby certify that two copies of the foregoing Answer to Complaint were mailed today to William A. Smith, Jr.

Transcript of Testimony.
J. O. Crouse, for Pltf., Direct.

Smith, Michael and Gardiner, 15th and H Streets, N. W.,
Washington 5, D. C., attorney for the plaintiff.

C. W. MOORE,
Solicitor.

[16] **Transcript of Testimony.**

* * *

JOHN O. CROUSE was called as a witness in his own
behalf and, having been first duly sworn, was examined
and testified as follows:

* * *

Direct Examination by Mrs. Slough:

Q. Will you please state your name and address and
occupation? [17] A. My name is John O. Crouse. My
occupation is president of—

The Court: You will have to speak louder than
that, Mr. Crouse.

The Witness: My name is John O. Crouse, age 61.
I am the president of Richland Auto Parts Company,
Mansfield, Ohio.

By Mrs. Slough:

Q. What are the products manufactured—

The Court: Please stand down by the lectern un-
less you want to talk about things you have in your
hand.

J. O. Crouse, for Pltf., Direct.

By Mrs. Slough:

Q. What products are manufactured by the Richland Auto Parts Company? A. Only manual push-pull flexible controls.

Q. Will you please state what you mean by manual push-pull controls? A. Manual push-pull control is a control by which you transmit motion by sliding into a member covered by outer flexible housing by push and pull, and when you use force on a manual push-pull control it inversely creates tension on the outer housing.

Q. You said flexible. Aren't there other types of controls? A. When I say it is flexible it is resilient, it will [18] move around objects; and I have always tried to manufacture one that will not stretch longitudinally.

Q. Have you ever manufactured other type controls? Are there not solid type controls? A. Yes, we have at times used solid rods with universal joints but they are quite expensive and difficult to get to the operating end, into the actuating lower end, hence, the flexible control answers the purpose.

Q. Are there any disadvantages in flexible controls? A. Yes, there has always been a big disadvantage and a need in the industry, and that is to manufacture an outer housing that will not stretch under compression loads, tensional loads. The inner sliding member is not particularly objectionable but on compression the weakness is always inherent in the outer housing. It will kink easily.

Q. When it kinks what harm does that do? A. It bends the inner core wires inoperable.

Q. How long has your company been manufacturing controls of this type? A. How long we have been manufacturing this type?

J. O. Crouse, for Pltf., Direct.

Q. Not of the type of the invention but the two which you described, flexible controls and solid controls. A. I would say since about 1915.

Q. What did your company manufacture prior to that time? [19] A. Nothing.

Q. 1950? A. 1915.

Q. Is that when your company started? A. Yes, and that is all we ever made.

Q. How long have you been with the company? A. I think about twenty-seven years; since 1935.

Q. Did you ever make any efforts prior to this invention to solve this problem of kinking? A. Oh, yes.

Q. Of flexible conduits? A. Oh, yes. Well, we will say we have been trying to spot-weld at different centers to eliminate the amount of casing that could stretch under operation. We have tried to advise our customers to hold it at different points.

Q. Do you mean different points on the link? A. That is different points in the link.

Q. What was the idea of that if you were going to hold it at various parts? A. In other words, in the vernacular in business, if a foot casing, say five pounds of tension will stretch an inch, two feet will stretch two inches longer. Control becomes the less operable in its reference to its stretching and blowing and giving with the operation of the inner core wire, so the need has been for a control that under normal use, [20] which ninety percent industrial use in all types of equipment, machinery, etc., is to have a control 15 to 18 feet long that could be easily assembled and yet operate a compression force of 10 to 15 or 20 pounds without blowing up and stretching; and that is what this invention has done.

Q. I hand you and hereby offer in evidence—

J. O. Crouse, for Pltf., Direct.

The Court: Don't offer it in evidence. Have it marked for identification.

The Deputy Clerk: Plaintiff's Exhibit 2 for identification.

(Plaintiff's Exhibit No. 2 was marked for identification.)

By Mrs. Slough:

Q. Is this a flexible conduit of the type you are describing?

The Court: What is it?

The Witness: A manual push-pull control.

By Mrs. Slough:

Q. Of what type, is it flexible? A. Yes, flexible casing of the run of the mill construction.

Q. Is this one manufactured by your company? A. It is.

Q. And are you manufacturing those now? [21] A. Yes.

Q. All right. Now tell me, can you demonstrate the disadvantages of that? A. The disadvantages?

Q. Yes. A. You demonstrated a few moments ago the way that will kink. I will try to straighten this out so that I can show the disadvantages. The first disadvantage is this (demonstrating). Stretching it has no initial tension, meaning that—May I step down on the floor, your Honor?

The Court: Yes.

The Witness: If we were trying to move something and the end of this casing is always supported at the lower operating actuated end—this is at the dash or bulk end—you don't want to move this. You are moving a lever which takes three or four

J. O. Crouse, for Pltff., Direct.

pounds to move it. This won't push more than a couple of pounds. I will demonstrate. I am the lever over here trying to be pushed by foot, the right foot, this being attached solid to a bracket in front of the lever and I am trying to push that. Nothing happens, it just springs. That means the initial tension of this is far below the force required to operate this lever.

The Court: Well, is that portion which you are holding in your hand with the handle, is that an extension of the wire that is inside that covering?

[22] The Witness: No, this is a covering (indicating). This is an extension right here (indicating).

The Court: I see.

The Witness: It is like an automobile choke.

The Court: I see.

The Witness: And, of course, as demonstrated, it kinks very easily. By pulling that wire out I can just kink it and we have got a bad feature.

The Court: You may offer that in evidence now.

Mr. Slough: I will offer in evidence the controls concerning which Mr. Crouse has just testified as Plaintiff's Exhibit Number 2.

The Deputy Clerk: Plaintiff's Exhibit Number 2. (Plaintiff's Exhibit No. 2 was received in evidence.)

The Witness: Be careful of that, it may spring. Be careful handling that.

The Court: I don't want to manipulate it, I just want to look at the casing. All right.

By Mrs. Slough:

Q. Now you have mentioned the disadvantages of this

J. O. Crouse, for Pltf., Direct.

type of flexible cable, but what are its advantages? Are there any advantages to it? You are still making them.

A. Oh, yes, the advantage of this type is for the [23] ordinary light-weight operation of a butterfly valve and choke or a throttle in which it takes one to two pounds or less to operate. That will work fairly well if the degrees and the radii are small, are not many. This creates more internal friction between the inner sliding member and the sides of the housing. It is just run of the mill. If you want to push a light-weight like a little choke in a lawn mower or an automobile a casing like that is all right.

Q. But that would still have the disadvantage of kinking? A. Definitely.

Q. Is one of the advantages of that in its ease of installation? A. The only advantage is the fact that for a light-weight operation of push and pull it is easy to install.

The Court: Was that made in conformity with any of the prior art here, the Schmid et al., or Marshall or Bentley?

The Witness: The one which I just described, no, sir, that is just run of the mill casing which has been used for twenty-five or thirty-five years, your Honor.

By Mrs. Slough:

Q. Will you now describe what the purpose of your invention was and when you first got the idea of doing that?

[24] A. Well, that is where the phenomenon occurs, and I will try to put it in simple language, sir.

The Court: All right.

The Witness: Knowing and seeking, and having sought for twenty-seven years, for a flexible cov-

J. O. Crouse, for Pltf., Direct.

ering for an inner core wire, a manual push-pull control, something that had a high initial tension and commercial value in that it was easier to manufacture and at lost cost, it occurred to me one day, when we had been experimenting with waterproof coverings by slipping over sleeves of different plastics laboriously and not very effectively, if it were possible to cover something and locking each of those convolutions of that flexible coil we might develop something. So arbitrarily I sent a couple of samples to a manufacturer one day.

By Mrs. Slough:

Q. Of what? A. Of that run of the mill casing.

The Court: Exhibit 1?

Mrs. Slough: Exhibit 2.

The Witness: And I asked them if they had anything in the way of a type of plastic—I didn't care what kind of plastic; I didn't know much about it then—that had high molecular density that would not stretch. Well, they hadn't but they would try. We asked them what types and they gave a [25] lot of types of polyvinyls, etc. I said I didn't care what it was just so it wouldn't stretch if you mold it continuously on a piece of this flexible casing. They did and we got it back and ran it through our tests, and we found that whereby 40 pounds on an 18 inch piece of that casing in that exhibit would stretch it almost 2 inches, that once we had this covering on it it would only stretch five-hundredths of an inch. Something happened. I really didn't know myself, so I started to, you might— Shall I continue?

The Court: Yes, go ahead.

J. O. Crouse, for Pltf., Direct.

The Witness: So I started to analyze this and I realized that a phenomenon had happened. We had taken two elements that hadn't any characteristics individually for a covering for manual control wires, and the inside core we gave a fairly hard protective covering but it would kink and it would stretch; and the outer plastic in itself, with the high molecular density would also collapse when you bend it; but once you molded it it was like screwing on an interlocking one. In the normal bend that would kink, but that hard plastic in the intersticing, the convolutions of that casing would prevent it to a great extent in a sharp bend, small radii 180 degrees where it couldn't collapse, and it would keep it open so that there was always a free passage of that inner core wire and you couldn't stretch it. Fifty pounds might stretch it a sixteenth of an inch. It was all [26] to non-stretchability, we didn't want that to stretch; and it has been performing very successful. We have not advertised it but just suggested it and it sold.

By Mrs. Slough:

Q. Where have you sold these installations? A. We are very happy to say that the Ordnance Department has accepted it for Army personnel carriers.

Q. What do they use it for? A. Throttles and chokes. They want something that will not stretch and afford protection against acids, dust, weather and oil.

Q. How long a control is that? A. These are eight feet controls. Then the Coast Guard uses them sixty feet long, which is phenomenal.

Q. Where is it used in industry? A. What industry.

Q. Yes. A. Well, we sell to people like Fairbanks-

J. O. Crouse, for Pltf., Direct.

Morris, General Motors, etc., and they use them for heavy tractors and bulldozers, etc. There is a demand for a high initial tension casing of this type.

Q. Was there anything of that sort before? A. No, there was not. And I looked personally for something for years and couldn't find anything in this country or out of the country; and you still can't buy this type of [27] high initial tension flexible housing.

The Court: Is this superseding the old conventional pull and push?

The Witness: Oh, yes. It is taking that over in place of it; I should say so.

By Mrs. Slough:

Q. When you talk about high initial tension, when do you mean that that high initial tension occurs, when you put that casing on, during the construction or after it cures? A. After it cures. You see, it goes on in a fluid state and as it cures it becomes hard, and we are keeping it as hard as we possibly can and still have it resilient.

Q. Well, in your claim you say that you have a plastic material which is—Just a moment, I will get the language because I want to be sure I know what you mean by this. You say that “a plastic material being applied over all outwardly presented surfaces of said helix, being solidified in situ, and having physical properties generally corresponding to those possessed, to a substantial degree, by a vinyl having a durometer hardness rating of D-75.”

Now when you say a durometer hardness rating of D-75, as an example, do you mean that your plastic has to possess properties which will correspond to this? What type [28] material, for instance, did you use prior to your application to accomplish this? A. We used both.

J. O. Crouse, for Pltf., Direct.

Q. Both what? A. Polyethylene and we used vinyls.

Q. Did your vinyls stretch? A. The vinyls didn't stretch.

Q. And does your polyethylene stretch? A. No.

Q. After curing they have this hardness? A. That is right. We had them made specifically to our specifications. They are highly resistant to stretching but they are resilient. We couldn't have them completely hard. If we did there would be no resiliency or improvement.

Q. And if you had a vinyl chloride acetate resin compounded with a plasticiser as in the Marshall Patent—I think you have read the Marshall Patent, have you not? A. Yes.

Q. Would this have a durometer reading hardness of D-75 or approximate that hardness? A. Absolutely not. It would be as close to a rubber band as it could be with the plasticiser of that type which must be used in vinyls.

Q. I will now hand you—

[29] The Court: Have you had it marked for identification?

Mrs. Slough: I ask that this be marked for identification.

The Deputy Clerk: Plaintiff's Exhibit 3 for identification.

(Plaintiff's Exhibit No. 3 was marked for identification.)

By Mrs. Slough:

Q. Now will you discuss this and tell the Judge about it?

The Court: What is that?

The Witness: This is a push-pull manual control.

J. O. Crouse, for Pltf., Direct.

The Court: Was it made in accordance with your application?

The Witness: It is operating the same way.

By Mrs. Slough:

Q. This contains your invention? A. Yes.

The Court: Do you wish to offer it in evidence?

Mrs. Slough: Yes, your Honor.

The Court: All right.

It may be received in evidence.

The Deputy Clerk: Plaintiff's Exhibit No. 3.

(Plaintiff's Exhibit No. 3 was received in evidence.)

[30] The Witness: May I demonstrate this?

The Court: You may.

The Witness: You noticed what happened when I operated that other one. Now I am standing on this same weight. Now I am about able to exert 40 or 50 pounds on this. I weigh 145 pounds. Now this is the thing we are trying to move out here. We don't want this to bulge or to move away from us. Now I will put my foot right against that. I hope that doesn't go through my foot. Now watch this casing. I am pushing here 50 pounds or more and no stretching, no bulge.

By Mrs. Slough:

Q. Did this move your foot or did you move your foot?

A. It moved my foot.

The Court: Are you observing this, Mr. Sears?

Mr. Sears: I have. Yes, your Honor.

The Court: I know you will have an opportunity to cross examine but I wanted to know if you are observing it. That is supposed to illustrate what?

J. O. Crouse, for Pltf., Direct.

The Witness: This illustrates the weakness of the normal flexible housing on a push-pull control.

By Mrs. Slough:

Q. This indicates the weakness or this indicates the improvement? A. Well, this indicates improvement over a flexible [31] control that pushes pounds in excess.

The Court: What is it pushing, the wiring or covering or both?

The Witness: The wire only. This is the housing. Inversely, when I put compression pounds you create tension pounds on this housing. You have a tendency to stretch it.

By Mrs. Slough:

Q. But this does not stretch, is that right? A. No, and in degrees which you couldn't do with a control like that, with 180 degrees this still operates freely because this won't stretch.

The Court: Let me see it.

All right.

The Witness: May I have a glass of water, your Honor?

The Court: Certainly.

Mrs. Slough: I ask that these be marked for identification.

The Court: They may be so marked.

The Deputy Clerk: Plaintiff's Exhibits 4 and 5 for identification.

(Plaintiff's Exhibits Nos. 4 & 5 were marked for identification.)

By Mrs. Slough:

Q. Now, Mr. Crouse, I am handing you two elements. One [32] is a helix coil wire and the other is a plastic tube.

J. O. Crouse, for Pltf., Direct.

The Court: Now identify them.

Mrs. Slough: The coiled wire is Plaintiff's Exhibit 5.

The Court: For identification.

Mrs. Slough: For identification. And the tubing is Plaintiff's Exhibit 4 for identification.

By Mrs. Slough:

Q. Are these two elements to be associated and, if so, will you please describe now the characteristics of both of these elements? A. This is the same sized diameter mono-coiled or single-coiled casing that was on the controls which stretched and easily kinked, which is the sized casing as the plastic is extruded or flowed on. This is a plastic unit. It is hard. You can't stretch it. When I mean you can't I mean it has high initial tension, superior to this. In itself it has no characteristics. This has the characteristic as acting as a sliding surface for this and keeps this from doing this and being bent. The two together create the piece of casing you saw on the control there. This in itself kinks easily and stretches easily. This one combined with this flowed on develops the duroflex casing.

The Court: Do you mean that those two put together [33] would make the same apparatus that you have made application for?

The Witness: The same type of flexible housing duroflex.

By Mrs. Slough:

Q. I might ask you if that tubing is in the form as it is there? You don't slide that on that wire, do you?

J. O. Crouse, for Pltf., Direct.

The Court: It is just for illustrating purposes, is it?

The Witness: It is just to show, your Honor, what it would do by itself when not combined together as we do.

Mrs. Slough: I ask that this be marked for identification.

The Deputy Clerk: Plaintiff's Exhibit 6 marked for identification.

(Plaintiff's Exhibit No. 6 was marked for identification.)

By Mrs. Slough:

Q. I will hand you Plaintiff's Exhibit 6 for identification and ask you if this is the combined unit to which you refer? A. It is, the same material, same diameter, as these two pieces before they are combined by extruding the special plastic on the inner core creating, in my feeling—and I believe it is absolutely true—revolutionary high [34] initial tension casing which—

The Court: When is the wire put into the tubing?

The Witness: This part here (indicating)?

The Court: Yes.

The Witness: That is bent through an extrusion machine, your Honor, in a die and is pulled through. The plastic flows on and around this.

The Court: That is done simultaneously?

The Witness: That is right.

By Mrs. Slough:

Q. I will now hand you, Mr. Crouse, a short length of tubing and wire, or flexible casing and wire, and ask you to explain to the Judge just exactly what the cut portion and the various portions illustrate? A. All right.

J. O. Crouse, for Pltf., Direct.

The Deputy Clerk: Plaintiff's Exhibit 7 for identification.

(Plaintiff's Exhibit No. 7 was marked for identification.)

The Witness: First, your Honor, we have been trying to do the antithesis of the Marshall Patent, which is complete stretchability. We want something that won't stretch. Now when this is molded on, like here, which is a piece of the cut plastic, it is threaded all the way through there, molded [35] on. Now that is the center. It is nothing, that is the casing by itself or the control by itself, but when you put that on you get a tough piece of covering and you can see that deep thread indentation in this whereby it is actually molded way deep into this, which you cannot do with any other type of plastic. It is a high molecular density, non-stretchable.

By Mrs. Slough:

Q. Mr. Crouse, did the sales of your company increase as a result of the use of this combination? A. Well, what is worrying me is they are increasing so fast. And the reason is that we have a very low cost. I can sell an even better high compression, high tension type casing for half of what my competitors can meet it with. As an aside, as a by-product, we have some which we can fill with oil and sell it in there and also acids and chemicals. We have had it on chemical spray equipment for bananas in Honduras for several years. This isn't the ultimate answer. There are necessities in some operations for a five-hundred pound or one-thousand pound push-pull with flexibility, but the vast need is in the middle area where the industrial equipment, road machinery, army equipment, etc., lies, and boats. But

J. O. Crouse, for Pltf., Direct.

this has filled a vast void. It has increased our business in excess of twenty-five or thirty percent.

[36] Q. Have you done any substantial advertising? A. No, none at all. We haven't advertised or put brochures out. Shall I tell them why I am afraid to?

The Court: I understand the reason why you didn't.

By Mrs. Slough:

Q. Now, Mr. Crouse, I am going to hand you a copy of the Marshall Patent and I want you to describe to the Judge what the Marshall Patent structure is like as a man familiar with these structures. I want you to tell him what this is and what it will do. This is Letters Patent 2,550,576.

A. I will try to describe it without using this legal type of description. I am just going to describe what I see.

First, without a question of doubt, he describes a single wire casing with some sort of a plastic on it. He uses the word "vinyl" here but he definitely uses "elastomeric" and "plasticiser" which indicates to me that when he has a piece of casing he can make it of either size. This is an English Patent. When I was a young fellow they had the old curtain rods, and that is what he developed this for and for clothes lines and jewelry covers. And he mentions the colors. Now obviously you couldn't have something that didn't stretch for a purpose of hanging something up and holding a tension to hold a curtain on and covering the casing [37] with a colored plastic. Now in order to move this he would have to have so much plasticiser in that vinyl that it would move exactly with, as he talks about, move with and move in and out. It would have to move the same degree as this stretchable casing would move, otherwise, if it did not, it would slip away. His principle, as I see it, is he

J. O. Crouse, for Pltf., Direct.

says it does not leave this and change length or anything of that sort. He probably slips a sleeve on it. You know, just slips a covering on it. He hopes by putting a thin cover on it—But I can say this—

Q. He hoped what? A. Pardon.

Q. He hoped what by putting a thin cover? A. He hoped by putting a thin covering on it that it would protect this by holding into the interstices, but he couldn't mold a thin vinyl or too thin a plastic with that stretchability. It would not move deep into there. It is a physical impossibility. It is always going to move on that, but it must stretch with it and go back with it.

Q. Would the helix wire in the Marshall Patent be modified in any way by its covering, or would the covering be modified in any way by the wire? A. It does not change the basic physical characteristics of the inner core wire. He doesn't want it to. He wants it [38] to follow those. He wants it to stretch with those. He does not want to change the initial tension of compression and force that is inherent in the inner core wire.

Q. I will now hand you the Schmid Patent, 2,210,733, and ask you to discuss what is shown in figure 5 there? A. Well, the only thing I see in figure 5 here is another sort of elastic covering which is not molded in the interstices in any way at all. This is brought up because diameter-wise it certainly doesn't have anything to do with ours for the simple reason the diameter of the wire there is way in excess of the diameter of that—which is not a bad feature to have in a way, but it means nothing as far as our flexible casing is concerned.

Q. It does not accomplish your purpose? A. I don't know what they use it for.

J. O. Crouse, for Pltf., Direct.

Q. Now there is the Bentley Patent, 2,774,382, which the Patent Office Solicitor discussed in his opening argument. I want you to look at that and tell me whether this has a— Well, just tell me what it has and what you think it will do.

A. Well, these two patents have no relationship to a flexible control cable. It is absolutely worthless. This is nothing like it. This is electrical wiring with a plastic covering on it.

Q. It is what? [39] A. This just shows a conduit wiring with a method of putting plastic coverings on the conduit wires.

Q. For what? A. Electrical connections or something of that sort. This looks like it is a conduit for insertion of electrical wires. It is not for our purpose. What do they call it here, anyway? A “guiding conduit”. He says that it is a guiding conduit.

Q. Is it a solid material with wires imbedded in it or what? A. Pardon.

Q. Is it a solid material with wires imbedded in it? A. Yes, this is flat. This is a flat type. He has done that to take care of the tension of the pull. He is creating tension, apparently, by putting woven cable into his plastic.

Q. Would that affect the length of it in any way, or would it affect what? A. By the drawing it would all depend on the size of the wires and the type, again, of the plastic that he uses.

Q. It is not disclosed? A. It has no obvious commercial practical use. He speaks of cable all the time. That is not a wire. It is a woven cable and a strand that they use to pull through something [40] of this sort, but it is a sleeve. It is just sort of a sleeve. It doesn't go into any place that would hold or grip. It is just a covering.

J. O. Crouse, for Pltf., Cross.

Q. It would not modify the action of it? A. No, not that I can see that is in the inherent structure or the method.

Mrs. Slough: I think that is all, your Honor.

The Court: You may cross examine, Mr. Sears.

CROSS EXAMINATION by Mr. Sears:

Q. Mr. Crouse, you have told us—

The Court: You have forgotten some of those exhibits that are still on the table there.

You may proceed, Mr. Sears.

By Mr. Sears:

Q. Mr. Crouse, you have told us something of your efforts to develop a better flexible Bowdin wire control, and you thought that if you could only coat a helical steel wire conduit with a hard enough plastic you might come up with a very successful Bowdin wire guide; is that right? A. That is right.

Q. What was your basic idea? Did you farm this project out as to the selection of the particular plastic?

The Court: Did he what?

[41] Mr. Sears: Did he allow his model makers—

The Court: I thought you said "farm it out".

He didn't say that.

By Mr. Sears:

Q. Did you hire a developer or an engineer to make a model of your Bowdin wire conduit initially? A. No.

Q. You did all the work? A. Right.

Q. You selected the plastic yourself? A. Right.

* * *

J. O. Crouse, for Pltf., Cross.

[43] Q. Mr. Crouse, do you always use the same plastic in making your cables, regardless of the particular use? I mean the environmental use. [44] A. Yes.

Q. Is this designed for the heaviest conceivable loads? A. It is designed for the heaviest actual required loads used by ninety percent of the industry for the type of flexible control.

Q. But for the users that do not require such strength or who encounter problems involving very light loads, would it be possible to use a more yielding plastic? A. No, it would not.

Q. When you say it would not, do you really mean that you yourself would not do it, but that it would be possible though if someone desired? A. Could I hear your question again?

Q. Yes. If one desired to make a sheet of less stretchability for lighter loads, would that be possible? A. It would certainly be possible but not desirable, because it wouldn't create what my invention created, which is to keep a flexible housing from stretching, which is the maximum result you are always trying to achieve in a push-pull control; because under normal operating loads that is one thing but under impact use of a unit you increase the compression force and you never know what that is going to be so you keep as high initial tension in your coverage as you possibly can by non-stretchability.

[45] Q. Mr. Crouse, if a user had a problem of making a sharp bend, as sharp as possible, wouldn't the consideration of making the bend govern over this strength or non-stretchability of the casing in that event? Wouldn't it be desirable then to scale down the non-stretchability characteristic of the plastic? A. No, because if you keep it as

J. O. Crouse, for Pltf., Cross.

non-stretchable as possible and resist the stretch, because of its construction it is still resilient enough to take care of any practical installation bend required. If they go beyond that they shouldn't use a control of this type, push-pull.

* * *

[47] Q. Mr. Crouse, I will show you Part D of the Defendant's Exhibit 1. I believe that figure 4 shows your disclosed cable as slightly bent? A. That is right.

Q. Do you observe the spacing between adjacent coils?
A. I do.

Q. Do I understand you to say that the covering of, the vinyl—

The Court: Which one of the prior art references are you talking about?

Mr. Sears: This is the plaintiff's drawing at Part D on Defendant's Exhibit 1.

The Court: Oh, I see. All right.

Mr. Sears: It is his application drawing.

Mrs. Slough: At figure 4?

Mr. Sears: Yes.

By Mr. Sears:

Q. Now would you say, Mr. Crouse, that the vinyl covering is slightly stretched to permit the separation between adjacent steel convolutions of the coil 23? A. No, I don't think the vinyl covering in that phenomenon which occurs there will stretch as much as the actual movement of the inner core in the bend because it is [48] quite flexible. It tends to open a little bit and presses it against the vinyl or the poly underneath it here. It is not shown very well, but that is keeping these from compressing too tight or collapsing. So it keeps a uniform idea. This is controlling how

J. O. Crouse, for Pltf., Cross.

much this can move. There is some stretch there. You are getting a little stretch there but very little.

Q. Thank you. That is what I wanted to know.

Now, Mr. Crouse, the penetration of the covering material between adjacent coils tends to key or bind the covering to the coil so that they move as one; is that correct? I am referring to your own application. A. No, definitely they don't move as one in the general terminology of your question. They are practically immovable. When you say they move as one, under what conditions?

Q. A flexing motion, Mr. Crouse, bending laterally.

The Court: You have reference to figure 4, have you?

Mr. Sears: Yes, your Honor.

The Court: Have you got that before you?

The Witness: I know what it is, your Honor. I would say—Well, that is a phenomenon that I hope I can answer. We have practically immovability involved here. I [49] can't say whether the outer surface of that high molecular density plastic is moving or whether it is vice versa. I know it is moving in a way as one element, which is a high initial tension unit. This is high initial tension plastic we use where we use a lighter weight core for merely holding it open, but as far as movement, there is very little, because for the simple reason I can take this duraflex and take a one-inch diameter circle 360 degrees and you will not collapse it. You will not collapse the integral covering or the integral center, which two elements together make one. If they were separately and there was any movement in either on they would collapse or kink.

* * *

Memorandum Opinion.

(Filed September 10, 1963.)

This is an action under 35 U. S. C. Section 145, seeking a judgment authorizing the defendant, Commissioner of Patents, to issue a patent to plaintiff containing claims 12 and 13 of his application Serial No. 639,275, filed on February 11, 1957, and entitled "Flexible Tubing".

Claims 12 and 13 call for a flexible guide tube *per se* for a flexible control rod, the latter oftentimes being referred to in the art as a "bowden wire".

The subject matter of the application relates to a tubing structure designed specifically to house a flexible control cable such as is ordinarily referred to as a bowden cable. Such cables are commonly made of flexible wire and usually reciprocate along the longitudinal axis of the cable and tube, although rotation as well as reciprocation of said cable within the tube is not precluded. The cable itself is conventional. The tube comprises an inner spring wire helix whose successive and adjacent convolutions are maintained in contiguous engagement with each other.

The involved claims read as follows:

"12. A laterally flexible, and substantially non-extensible tubular housing for a Bowdin control wire, comprising a spring wire helix whose successive convolutions are resiliently maintained in lateral, contiguous, spring pressed engagement with each other, the interior of said helix providing a slide-way on which a said control wire may be longitudinally adjusted, and a substantially thick-walled coating of a plastic material being applied over all outwardly presented surfaces of said helix, being solidified in situ, and having physical

Memorandum Opinion.

properties generally corresponding to those possessed, to a substantial degree, by a vinyl having a durometer hardness rating of D-75, said coating being closely fitted within the exteriorly presented recesses between all pairs of successive helix convolutions, to longitudinally interlock said helix and coating, said coating being substantially non-stretchable, and preventing longitudinal stretching of said helix."

"13. The laterally flexible and substantially non-extensible tubular housing for a Bowdin control wire, substantially as set forth in Claim 12, and being further characterized by the limitation that the diameter of the helix wire be not substantially less than that dimension which is one-half of the diameter of the recited slideway."

The claims were rejected as being unpatentable in view of the following references:

Schmid et al. No. 2,210,733

Entitled: "Tool Operating Device and Flexible Cable Therefor"

Dated: August 6, 1940

Marshall No. 2,550,576

Entitled: "Cording"

Dated: April 24, 1951

Bentley No. 2,774,382

Entitled: "Guiding Conduit"

Dated: December 18, 1956

In addition to the Board of Examiners holding that the claims were rejected by reason of the aforementioned references, it rejected claim 13 as being drawn to new matter.

Memorandum Opinion.

Since the Court finds that the references relied upon render the involved claims unpatentable, it is deemed unnecessary to discuss the latter rejection of claim 13.

The Marshall patent is the chief reference. It discloses a "flexible cording or rod material for clothes lines, cables, bracelets, suspending curtains and for like purposes", and shows a tubing structure comprising a helically coiled spring metal wire having its adjacent or contiguous convolutions in engagement. A vinyl covering is formed in situ on the outer surface of the said wire. The vinyl coating is applied by feeding the wire coating through a die having a somewhat larger diameter than the coil. The covering is forced under pressure into the outer helical grooves formed by adjacent convolutions of the wire. Marshall contemplates the use of his tube, among other things, as a clothes line, but not as a guide for a bowden wire. The hardness of the vinyl plastic covering is not specified by Marshall.

Schmid et al. demonstrates a bowden wire guide tube comprising a helical wire core and a rubber covering thereover. The rubber cover does not appear to be keyed to the core along its length. The turns of the core are contiguous and formed from thick wire, larger in diameter than the slide-way for the bowden wire.

Bentley shows an extruded tubular plastic guide for a bowden wire. At least one longitudinal reinforcement wire is embedded in the plastic guide to obviate stretching.

The Court agrees with the tribunals of the Patent Office that claims 12 and 13 merely called for a tubular guide *per*

Memorandum Opinion.

se, and that the bowden wire is not claimed in combination with the tubular guide.

Marshall discloses the claimed structure involved herein. Therefore, the Court finds that the differences in the hardness of the plastic coating and the size of the core wire are merely matters of degree since nothing critical is present. The specification and claims do not suggest criticalness for a D-75 hardness, and that suggestion is a fundamental requirement for ascribing patentable weight to specific values or ranges. See *In re Honnig*, 193 F. 2d 191; *In re Shoemaker*, 83 F. 2d 286.

The Court finds that Marshall is a complete anticipation of the structure defined by claim 12, and that the dimensional relationship added by claim 13 fails in patentability because said dimensional relationship is not critical.

The Board of Appeals' interpretation of plaintiff's plastic covering as having a small degree of stretchability seems to be correct.

It appears to the Court that it would be obvious to one skilled in the art to extrude a plastic coating on the helical wire core of Schmid et al. in lieu of Marshall's teaching if such were desired.

There was evidence at the trial that the involved claims have proved commercially successful, but evidence of commercial success will not render an invention patentable when such invention has clearly been anticipated as being obvious by the prior art.

In accordance with the foregoing discussion, the Court finds for the defendant, and concludes that plaintiff is not entitled to a patent containing either of claims 12 or 13.

Order.
Notice of Appeal.

What has been stated herein shall constitute Findings of Fact and Conclusions of Law.

Dated: September 10, 1963.

JOSEPH R. JACKSON,
Judge.

Order.

(Filed September 10, 1963.)

This cause came on for trial on May 20, 1963. Upon consideration of the record herein, as well as the briefs which the Court accorded counsel for plaintiff and defendant an opportunity to file, it is this 10th day of September, 1963.

ORDERED, that judgment be, and the same is hereby entered in favor of defendant, and that the Complaint be, and it is hereby dismissed, with costs to be assessed against plaintiff.

JOSEPH R. JACKSON,
Judge.

Notice of Appeal.

(Filed November 8, 1963.)

Notice is hereby given this 8th day of November, 1963, that Plaintiff, John O. Crouse, hereby appeals to the U. S. Court of Appeals for the District of Columbia Circuit from

*Statement of Points on Which Appellant Intends to Rely
on Appeal.*

the Judgment of this Court entered on the 10th day of September, 1963 in favor of Defendant, Commissioner of Patents, against said Plaintiff, John O. Crouse and dismissing the complaint herein.

SLOUGH AND SLOUGH,
FRANK M. SLOUGH,

J. H. SLOUGH,
Attorneys for Plaintiff-Appellant,
602-04 B. F. Keith Building,
Cleveland 15, Ohio,

and

SMITH, MICHAEL AND GARDNER,
WILLIAM A. SMITH, JR.,
Of Counsel,
922 Woodward Building,
15th & H Streets, N. W.,
Washington 5, D. C.

**Statement of Points on Which Appellant Intends to
Rely on Appeal.**

(Filed December 20, 1963.)

Appellant-Plaintiff, above-named, states that the points on which he intends to rely on the appeal in this action are as follows:

1. The court erred in holding that claims 12 and 13 of Plaintiff's application for United States Letters

*Statement of Points on Which Appellant Intends to Rely
on Appeal.*

Patent, Serial No. 639,275 filed February 11, 1957 and entitled "Flexible Tubing" are unpatentable in view of the following references:

Schmid et al.	No. 2,210,733
Entitled:	"Tool Operating Device and Flexible Cable Therefor"
Dated:	August 6, 1940
Marshall	No. 2,550,576
Entitled:	"Cording"
Dated:	April 24, 1951
Bentley	No. 2,774,382
Entitled:	"Guiding Conduit"
Dated:	December 18, 1956

2. The court erred in holding that claims 12 and 13 of Plaintiff's application, Serial No. 639,275, merely called for a tubular guide *per se*, and that the Bowden wire is not claimed in combination with the tubular guide.
3. The court erred in finding that the differences in the hardness of the plastic coating and the size of the core wire are merely matters of degree and nothing critical is present.
4. The court erred in finding that the specification and claims do not suggest criticalness for a D-75 hardness.
5. The Court erred in finding that the United States Letters Patent No. 2,550,576 to Marshall, dated April 24, 1951, is a complete anticipation of the

*Statement of Points on Which Appellant Intends to Rely
on Appeal.*

structure defined by claim 12 of application, Serial No. 639,275, and that the dimensional relationship added by claim 13 of said application fails in patentability because said dimensional relationship is not critical.

6. The court erred in holding that the Board of Appeals' interpretation of plaintiff's plastic covering as having a small degree of stretchability to be correct.
7. The court erred in holding that it would be obvious to one skilled in the art to extrude a plastic coating on the helical wire core of Schmid et al. (U. S. Patent No. 2,210,733 dated August 6, 1940) in lieu of Marshall's teaching (U. S. Patent No. 2,550,576 dated April 24, 1951) if such were desired.
8. The court erred in finding for the Defendant and in concluding that Plaintiff is not entitled to a patent containing either of claims 12 or 13 of Plaintiff's application, Serial No. 639,275.

Respectfully submitted,

J. HELEN SLOUGH,
Attorney for Plaintiff,
SLOUGH AND SLOUGH,
Keith Building,
Cleveland, Ohio 44115.

Of Counsel:

WILLIAM A. SMITH, JR.,
Smith, Michael & Gardiner,
Woodward Building,
Washington, D. C. 20505.

Plaintiff's Exhibit 1.

CERTIFICATE OF SERVICE.

This is to certify that two (2) copies of the foregoing Statement was this 20th day of December, 1963, placed in the United States Mail, Air mail paid, addressed to the Solicitor for The Commissioner of Patents, to-wit:

Jere W. Sears, Esq.,
Solicitor's Office,
U. S. Patent Office,
Washington, D. C. 20525.

J. HELEN SLOUGH,
Attorney for Plaintiff.

Plaintiff's Exhibit 1.

Appeal No. 601 65.
Serial No. (Series of 1948) 639275. P. R. Div.
Assistant examiner Sullivan. Class 74. Subclass 501.
Division No. [11] 12. Filed complete (Date) Feb. 11, 1957.
Serial No. 639 275.
Applicant(s) CROUSE, JOHN O. OF MANSFIELD, OHIO.
Patent Number On Brief. Dated

CLAIMS FOREIGN PRIORITY

Country	Date
Freehof	
Andrews	
Dracopoulos	

Plaintiff's Exhibit 1.

Number claims allowed Print claim(s)

Class Subclass

Assignor to Richland Auto Parts Company, Mansfield,
Ohio, a corp. of Ohio.

Title of invention FLEXIBLE TUBING.

Sh. drw. 1. Extra claims Filing fee \$30.

Transaction 35689. Atty's docket 4249.

☐ Division of. ☐ Continuation of.

☐ Substitute for abandoned.

☐ Continuation-in-part of.

APPLICATION

Serial No. Filed Now Patent No.
Granted

APPLICATION

Serial No. Filed

This is to certify that annexed hereto is a true copy
from the records of the United States Patent Office of
File Wrapper and Contents of the file identified above.

By authority of the

COMMISSIONER OF PATENTS

W. G. LANHAM, JR.

Certifying Officer.

(SEAL)

Date May 16, 1962.

Appeal No. 601 65.

Serial No. (series of 1948) 639275. P. R. Div.

Assistant examiner Sullivan. Class 74. Subclass 501.

Plaintiff's Exhibit 1.

Division No. [11] 12. Filed complete (Date) Feb. 11, 1957.
 Serial No. 639 275.
 Applicant(s) CROUSE, JOHN O. OF MANSFIELD, OHIO.
 Patent Number On Brief. Dated

CLAIMS FOREIGN PRIORITY

Country Date
 Freehof
 Andrews
 Dracopoulos
 Number claims Print claim(s)
 Class Subclass
 Assignor to Richland Auto Parts Company, Mansfield,
 Ohio, a corp of Ohio.
 Title of invention FLEXIBLE TUBING.
 Sh. drw. 1. Extra claims Filing fee \$30.
 Transaction 35689. Atty's docket 4249.
☐ Division of. ☐ Continuation of.
☐ Substitute for abandoned.
☐ Continuation-in-part of.

APPLICATION

Serial No. Filed Now Patent No.
 Granted

APPLICATION

Serial No. Filed
 Send correspondence to:
 FRANK M. SLOUGH & J. H. SLOUGH
 602 B. F. Keith Bldg.
 Cleveland 15, Ohio

Plaintiff's Exhibit 1.

Principal attorney(s)

FRANK M. SLOUGH & J. H. SLOUGH

Associate attorney(s)


1

PETITION

TO THE COMMISSIONER OF PATENTS:

Your petitioner JOHN O. CROUSE a citizen of the United States residing at Mansfield in the County of Richland and State of Ohio and whose Post Office address is c/o Richland Auto Parts Company, Mansfield, Ohio, U.S.A. prays that Letters Patent may be granted to him for Improvements in "Flexible Tubing" as set forth in the annexed specification.

And he hereby appoints Frank M. Slough & J. H. Slough, Reg. No. 16,207 of 602 B. F. Keith Building, Cleveland 15, Ohio as his Attorneys with full power of substitution and revocation, to prosecute this application, to make alterations and amendments therein, to receive the patent, and to transact all business in the Patent Office connected therewith.

 Sign full name here JOHN O. CROUSE

SPECIFICATION

TO ALL WHOM IT MAY CONCERN:

Be it known, that John O. Crouse a citizen of the United States, residing at Mansfield in the County of Richland and State of Ohio has invented certain new and useful improvements in "Flexible Tubing" of which the following is a specification.

Plaintiff's Exhibit 1.

2 My invention relates to flexible tubing and particularly to tubing adapted to house a reciprocable Bowden control type cable for remotely actuating a control element such as a throttle, choke, or gear shift of an engine.

 An object of my invention is to provide a flexible tubing of the above type which can be flexed repeatedly in operation without injury thereto.

 Another object of my invention is to provide a tubing of the above type which is not subject to an appreciable amount of stretching in operation.

 Still another object of my invention is to provide such a tubing which has a lateral structural strength in excess of that which is found in other types of tubing which are adaptable for similar purposes.

 Yet another object of my invention is to provide a tubing of the above type which has inherently controlled bending characteristics which prevent pinching and kinking of the tubing in ordinary use.

 Another object of my invention is to provide a tubing of the above type which is highly resistant to the effects of weather and temperature.

 Still other objects of my invention and the invention itself will be readily understood by a study of the appended description and the accompanying drawings.

 In the drawings:

3 Fig. 1 is an enlarged detailed view of a portion of the tubing shown partly in section;

Plaintiff's Exhibit 1.

Fig. 2 is a sectional view similar to Fig. 1 showing a portion of the tubing in a flexed position;

Fig. 3 is a transverse sectional view taken along the line 5-5 of Fig. 2;

4 The flexible tubing of my invention, as herein described and illustrated, is shown as it would be applied for remote control purposes in a small outboard marine craft. In such a craft, the steering is ordinarily accomplished by pivoting the outboard motor, and the throttle control housing and cable are subjected to repeated flexing in response to such pivotal movement. To maintain accurate throttle control, it is necessary that the cable housing not be subject to stretching from use. It is also essential that the housing be capable of a reasonable amount of bending without acquiring a permanent bend or set and that it be impervious to adverse effects from oil, water, temperature and the like.

The new and novel flexible tubing of my invention is readily adaptable for various uses and the marine application as herein described and illustrated is submitted as an example only.

Referring now to the drawings in all of which like parts are designated by like reference characters and particularly to Fig. 1, at 10 I show a small boat having an outboard motor 11 pivotally mounted at the stern thereof. Adjacent the forward end of the boat 10 is a control handle 12, said control handle being pivotally mounted at its lowermost end 13 in any suitable manner to the starboard gunwale 14 of said boat. A flexible control cable 15 is attached at one end thereof to the control handle 12 and at the other end thereof

Plaintiff's Exhibit 1.

to a throttle lever 16 of the motor 11. The cable 15 extends rearwardly through flexible tubing 20 which is secured by any suitable means such as clips 17 to the starboard gunwale 14 of the boat 10. The cable 15 is attached to the handle 12 radially outwardly from the pivoted end 13 thereof whereby pivotal movement of said handle effects a reciprocating motion in said cable within the tubing 20. The reciprocating movement of the cable 15 actuates the throttle lever 16 of the meter 11 thereby controlling the speed of said motor.

Referring now to Figs. 2, 3, 4 and 5 in which the details of the flexible tubing 20 are shown, at 21 I show a helically wound core preferably formed of metallic wire or similar material, said core being laterally encompassed throughout its longitudinal dimension by a plastic coating 22 integrally molded upon said core. The helically wound core 21 provides a multiplicity of contiguous coils 23 and has threaded therethrough the control cable 15. The core 21 may be formed of wire which is flat, rectangular, or circular in cross-sectional form. The cable 15 is diametrically smaller than the inner diameter of the core 21 whereby said cable can move freely throughout the length of said core, and in the form shown, said cable is preferably circular in cross section.

The plastic coating 22 may be molded upon the core 21 in any suitable manner such as by extrusion. In the molding process, the plastic of the coating 22 is formed around the core 21 while said plastic is in a molten state, and the inner concave peripheral surface 24 of said coating forms helical interlocking ridges 26 between the coils 23 of

Plaintiff's Exhibit 1.

6 said core. The outer circumferential edge of each coil 23 is interposed between two of the ridges 26 and the core 21 is thereby constrained against longitudinal displacement relative to the coating 22.

The core 21 is inherently resilient and capable of rapid restitution to its original shape after stretching. If, however, the core 21 is stretched beyond its elastic limit, it will acquire a "set" or permanent deformation. When the core 21 is integrally united and interlocked with the coating 22, said core cannot be stretched beyond its elastic limit as it is constrained throughout its entire length by the multiplicity of ridges 26.

The coating 22 may be manufactured of any suitable plastic material. A preferred plastic which I have found to be well suited for my flexible tubing is a vinyl having a Durometer reading of D-75 hardness. The vinyl plastic which I have chosen by way of example has a high initial tension or resistance to stretching but is pliable and can be bent or flexed. This plastic is resilient but its force of restitution is substantially less than that of the core 21, and its resilient qualities are not adversely effected by temperature, weather, and the like.

It will be understood, therefore, that the flexible tubing 20 comprises two integrally and complementarily united elements, the core 21 and the coating 22, having different elastic qualities which, when combined and properly interlocked, provide a tubing having optimum characteristics of flexibility, resilience and structural strength.

7 The high initial tension of the coating 22 prevents the tubing 20 from stretching in use; the high force of restitution of the core 21 provides said tubing with the desira-

Plaintiff's Exhibit 1.

ble flexing characteristics; and the circular coils 23 provide great lateral resistance to pinching, kinking, or collapsing of said tubing.

The coefficients of elastic resilience and restitution of the core 21 and the coating 22 interact to provide unitary flexing and structural qualities which could not be obtained with either the core or the plastic coating alone.

Referring now to Fig. 4, it will be noted that when the tubing 20 is bent, the coils 23 separate slightly at the portions thereof which are disposed radially outwardly from the center of said bend, and the radially outwardly disposed portion of the coating 22 is subjected to substantial stress thereby pressing radially inwardly upon said coils with increased force. The radially inwardly disposed portion of the flexed coating 22 is compressed thereby causing the ridges 26 to be increasingly frictionally interlocked with the coils 23. Because of this frictional interlock between each of the coils 23 by the ridges 26 and the stressed outer portion of the coating 22, the separation of said coils at their radially outermost portions is controlled whereby tight bends or kinks and subsequent collapse of the tubing 20 is prevented. The controlled bending of the tubing 20 provides free reciprocating action of the cable 15 extending therethrough and insures against binding of said cable.

In Fig. 6, I show a modified form 30 of my flexible tubing wherein the core 31 comprises an open, helically wound tension spring having coils 33 of preferably cross-sectionally rectangular form. The core 31 is laterally encompassed by a plastic coating 32 substantially similar to the coating 22 of the flexible tubing 20.

Plaintiff's Exhibit 1.

The inner peripheral surface 34 of the coating 32 is provided with helical ridges 36, said ridges being interposed between the coils 30 to effect an interlocking action between the core 31 and said coating similar to the interlocking action between the core 21 and the coating 22 of the tubing 20. The flexing characteristics of the tubing 30 are similar to the flexing characteristics of the tubing 20.

It will be understood from the foregoing description that the flexible tubing of my invention can be adapted to incorporate either open or closed helically wound cores, that the coils may be of any preferred cross-sectional form, and that the coating may be of any desired thickness. Departures from the details of my invention as it is herein described and illustrated may be made, such as changes in size and dimension, without, however, departing from the spirit of my invention and the scope of the appended claims.

What I claim is:

- 9 1. A flexible tubing comprising an inner resilient core of metallic material, a plastic coating integrally molded upon said core, said core and said coating having initially different coefficients of elastic resilience and restitution.
2. A flexible tubing comprising an inner resilient core of nonplastic material, a plastic coating integrally molded upon said core, said core having a longitudinally concentric orifice therethrough, a reciprocating member longitudinally disposed through said orifice and freely movable therein, said core and said coating having initially different coefficients of elastic resilience and restitution.
3. A flexible tubing comprising an inner resilient core of nonplastic material, a plastic coating integrally molded

Plaintiff's Exhibit 1.

upon said core, said core having a longitudinally concentric orifice therethrough, a reciprocating member longitudinally disposed through said orifice and freely movable therein, said core and said coating having initially different coefficients of elastic resilience and restitution and operative coefficients of elastic resilience and restitution.

4. A flexible tubing comprising a helically wound, resilient core of nonplastic material, a plastic coating molded upon said core, said core comprising a multiplicity of circularly formed coils, said coating having helical ridges projecting radially inwardly from the inner concave surface thereof, said ridges interposingly interlocked with said coils whereby said coating and said coil are flexibly interdependent relative to each other, said core and said coating having initially different coefficients of elastic resilience and restitution.

10 5. In a flexible tubing adapted to house a reciprocating control cable, a helically wound, resilient, metallic core, said core comprising a plurality of coils, a plastic coating molded upon said core, helical ridges projecting radially inwardly from the inner concave surface of said coating, said ridges interposed with said coils whereby said core and said coating are interlocked against longitudinal displacement relative to each other, said core having a relatively greater initial elastic limit and force of restitution than said coating.

6. In a flexible tubing adapted to house a reciprocating control cable, a helically wound, resilient, metallic core, said core comprising a plurality of contiguous coils, a plastic coating molded upon said core, helical ridges projecting radially inwardly from the inner concave surface of said coating said ridges interposed with said coils whereby

Plaintiff's Exhibit 1.

said core and said coating are interlocked against longitudinal displacement relative to each other, said core having a relatively greater initial elastic limit and force of restitution than said coating.

7. In a flexible tubing adapted to house a reciprocating control cable, a helically wound, resilient, metallic core, said core comprising a plurality of interspaced coils, a plastic coating molded upon said core, helical ridges projecting radially inwardly from the inner concave surface of said coating, said ridges interposed with said coils whereby said core and said coating are interlocked against longitudinal displacement relative to each other, said core having a relatively greater initial elastic limit and force of restitution than said coating.


8. A flexible tubing having an inner, flexible, metallic core and a plastic coating molded upon said core whereby the inner concave surface of said coating substantially complementarily interfits the outer convex surface of said core.

11 9. A flexible tubing comprising an inner resilient core of metallic material, a plastic coating integrally molded upon said core, said coating having a relatively greater initial tension than said core.

10. In a flexible tubing adapted to house a reciprocating control cable, a helically wound, resilient, metallic core, said core comprising a plurality of contiguous coils, a plastic coating molded upon said core, helical ridges projecting radially inwardly from the inner concave surface of said coating, said ridges interposed with said coils whereby said core and said coating are interlocked against longitudinal displacement relative to each other, said coating having a relatively greater initial tension than said core.


Plaintiff's Exhibit 1.

12 IN TESTIMONY WHEREOF he hereunto affixes his signature this 18th day of January, 1957.

 Sign full name here JOHN O. CROUSE

State of Ohio }
County of Cuyahoga } ss.:

JOHN O. CROUSE the above named petitioner, being duly sworn, deposes and says, that he is a citizen of the United States and a resident of Mansfield in the County of Richland and State of Ohio that he verily believes himself to be the original, first and sole inventor of the Improvements in "Flexible Tubing" described and claimed in the annexed specification; that he does not know and does not believe that the same was ever known or used before his invention or discovery thereof, or patented or described in any printed publication in any country before his invention or discovery thereof, or more than one year prior to this application, or in public use or on sale in the United States for more than one year prior to this application; that said invention has not been patented in any country foreign to the United States on an application filed by him or his legal representatives or assigns more than twelve months prior to this application; and that no application for patent on said improvement has been filed by him or his representatives or assigns in any country foreign to the United States.

 Sign full name here JOHN O. CROUSE

Subscribed, acknowledged and sworn to before me this 18th day of January, 1957.

EILEEN E. FLYNN

Notary Public

My commission Expires Mar. 30, 1958

74
501

1957 MAR 1

639275

Div. 12

PRINT OF DRAWING AS
ORIGINALLY FILED

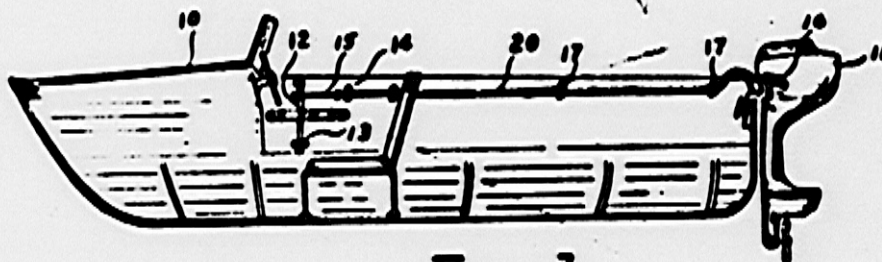


Fig-1

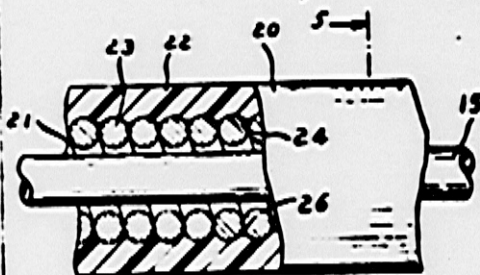


Fig-2

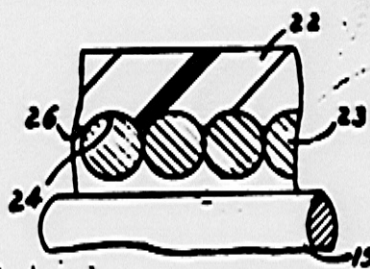


Fig-3

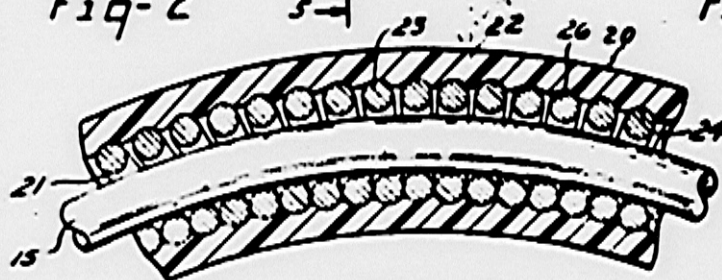


Fig-4



Fig-5

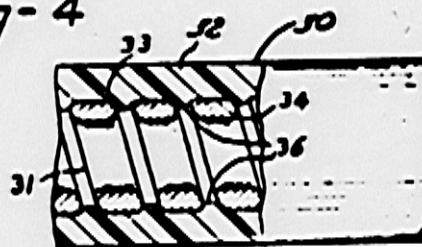


Fig-6

INVENTOR.
John O. Crouse
BY *Shiff & Shiff*
Attorneys



Plaintiff's Exhibit 1.

14 U. S. DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE
Washington

Paper No. 3

Applicant:

John O. Crouse

Ser. No.

639,275

Mailed

Filed

Feb. 11, 1957

Oct 15 1957

For

FLEXIBLE TUBING

Pat Div 11

Frank M. Slough and
J. H. Slough
602 B. F. Keith Bldg.
Cleveland 15, Ohio

Please find below a communication from the EXAMINER in charge of this application.

ROBERT C. WATSON
Commissioner of Patents

This application has been examined.

References made of record:

Wallace	1,915,041	June 20, 1933	138-58xr
Collom	1,954,724	Apr. 10, 1934	138-58
Paige	1,999,663	Apr. 30, 1935	138-58
Brickman	2,550,670	May 1, 1951	138-58
Lee	2,558,763	July 3, 1951	138-53xr
Morse	2,730,134	Jan. 10, 1956	138-57

Plaintiff's Exhibit 1.

Claims 1-10 appear in this application.

Claims 1 and 4-10 are rejected as being clearly readable on Lee.

Claims 2 and 3 are rejected as being drawn to the old combination of a flexible tubing with a reciprocating member longitudinally disposed and freely movable within the flexible tubing. This combination is seen to be old by the patent to Morse which discloses the same elements functionally interrelated in the same manner. The combination of claims 1 and 4 differs from that shown in Morse only in setting forth a specific construction of the flexible tubing itself. Therefore, claims 2 and 3 are rejected because it is believed that the improvement over the prior art is not in the combination, which is old, but in the specific flexible tube. Attention is called to the patents to Collom and Brickman which indicate that flexible tubings have been recognized as being separate subjects of invention, capable of independent use, and as having a distinct status of their own.

Claims 2 and 3 are further rejected as being unpatentable over Morse in view of Lee. Morse shows all the claimed structure except the specific flexible tubing. Lee has the teaching of the specific flexible tubing. To substitute the flexible tubing of Lee for the flexible tubing of Morse would merely be the substitution of equivalents, which would not be invention.

No claims is allowed.

E. V. BENHAM
Examiner

J LASTRUP :mls

Plaintiff's Exhibit 1.

16

Paper No. J 4/A

Apr 16 1958

Div 11

Ele

DEPARTMENT OF COMMERCE

UNITED STATES PATENT OFFICE

Applicant: John O. Crouse; Serial No.: 639,275; Filed:
February 11, 1957; For: Flexible Tubing; Docket
No: 4249

Patent Division 11

Commissioner of Patents
Washington 25, D. C.

April 9, 1958
Cleveland 15, Ohio

Dear Sir:

In response to Office Action dated October 15, 1957,
applicant begs to amend his above entitled application
as follows:

In the Claims

Cancel claims 2, 3 and 8.

Claim 1, line 3, cancel "and said coating," after "hav-
ing" insert —an—;

lines 3 and 4, cancel "different" and substitute there-
fore —greater—;

line 4, change "coefficients" to —coefficient—, and after
"restitution" before the period insert —than said coat-
ing—;

Claim 4, line 8, cancel "and said coating," after "hav-
ing" insert —an—, omit "different" and substitute there-
fore —greater—;

Plaintiff's Exhibit 1.

lines 8 and 9, change "coefficients" to —coefficient—;
line 9, after "restitution" before the period insert
—than said coating—.

Respectfully Submitted,

JOHN O. CROUSE

By: FRANK M. SLOUGH & J. H. SLOUGH
Frank M. Slough & J. H. Slough
Attorneys for Applicant

17

REMARKS

Claims 1 and 4-10 have been rejected by the Examiner as clearly readable on Lee. Claim 8 is canceled without acquiescence in the Examiner's position but in the belief that the subject invention is adequately covered by the remaining claims.

Applicant believes that his invention differs in certain important respects from that shown in the Lee patent and that these differences are sufficiently set forth in the amended claims 1-4 and the remaining claims 5-7 and 9-10.

The flexible sheath 15 of Lee, corresponding to applicant's core 21, does not have the resilient cover 23 molded directly thereto. The cover 23 is molded around the soft wire 33 which moves and wedges inwardly at the outside of a flexure thereby tending to move away from the coating at this point. The ridges of the cover 23 are directly aligned with the coils of the spring 29 and would, therefore, prevent the cover from gripping tightly upon the soft wire and would produce an action entirely different from applicant's device. In applicant's structure, the coating 22 is moulded directly to the core 21, and in any flexure

Plaintiff's Exhibit 1.

movement, said coating will bear tightly against the core at the outside of the bend thereby interlocking more tightly with said core and pressing more strongly upon it.

In view of the above, it is evident that the cover of Lee does not effectively coat with the flexible sheath 15 and is actually maintained in spaced relationship to it. In applicant's device, the two elements, core and coating, flex as a unit and effectively mutually modify the inherent resilient and flexing characteristics of each other.

The coaction between the core and the coating, which does not exist in Lee, is an important feature of applicant's invention and is further brought out by the specific inherent flexing characteristics of the elements involved.

18 Lee's cover does not materially add to or affect the flexibility of the entire member whereas in applicant's device, the coating has a very definite effect upon the flexing of the tubing. Applicant has clearly set forth in his specification that the coating has a "high initial tension" (page 6, line 17 and page 7, line 1) which "prevents the tubing 20 from stretching in use;" (page 7, lines 2 and 3) whereas the core 21 has a "high force of restitution" (page 7, line 3). The coating of applicant's device is not a more weatherproofing element or a tube for carrying fluid, although it does, in fact, achieve these desirable characteristics. The coating 22 is actually an essential and important part of the flexible tubing establishing characteristics, limits, etc. with respect to the flexibility of tubing and not a secondary adjunct thereto. This is a new and novel feature which is not present in Lee or any of the other references of record, Wallace, Collom, Paige, Brickman, and Morse, and is not found in any other prior

Plaintiff's Exhibit 1.

art device with which the applicant, long experienced in the field, is familiar.

In claim 1 applicant sets forth a "plastic coating integrally molded upon said core" and he further states that the core has "an initially greater coefficient of elastic resilience and restitution than said coating" which is not true of Lee's device.

Claim 4 reiterates the distinctions over Lee of the "plastic coating molded upon said core" and "said core having an initially greater coefficient of elastic resilience and restitution than said coating."

Claims 5, 6, and 7 recite "helical ridges . . . interposed with said coils" and in each said claim, the core is described as "having a relatively greater elastic limit and force of restitution than said coating," conditions not found in the Lee device.

Claim 9 distinguishes over Lee by providing a "coating having a relatively greater initial tension than said core."

This important distinction is also true of claim 10
19 which, additionally, recites the "ridges interposed with said coils."

Claims 2 and 3 are hereby cancelled, not in acquiescence to the Examiner's position but in the belief that the remaining claims fully cover applicant's invention.

Applicant has noted the additional references made of record, Wallace, Collom, Paige, Brickman, and Morse, and finds that none of them anticipates his device as now set forth in the claims remaining in this application, claims 1, 4-7, 9 and 10. In view of the above remarks clearly explaining the distinguishing features of applicant's device,

Plaintiff's Exhibit 1.

said distinguishing features being embodied in the remaining claims, Examiner is respectfully requested to reconsider this application and pass the same to issue.

Respectfully Submitted,

FRANK M. SLOUGH & J. H. SLOUGH

FRANK M. SLOUGH & J. H. SLOUGH
Attorneys for Applicant

20 U. S. DEPARTMENT OF COMMERCE
PATENT OFFICE
Washington

Frank M. Slough &
J. H. Slough
602 B. F. Keith Bldg.
Cleveland 15, Ohio.

Applicant: Paper No. 5
John O. Crouse

Ser. No.
639,275

Mailed

Filed
Feb. 11, 1957

Aug 28 1958

For
FLEXIBLE TUBING

Pat Div 11

Please find below a communication from the EXAMINER in charge of this application.

ROBERT C. WATSON
Commissioner of Patents.

Plaintiff's Exhibit 1.

Responsive to amendment filed Apr. 11, 1958.

Additional references made of record:

Albertson	1,481,078	Jan. 15, 1924	64/2
Marshall	2,550,576	Apr. 24, 1951	138/56

Claims 1, 4-7, 9 and 10 remain in this application.

The following are an inaccurate place and indefinite places in the specification. Page 7, lines 1 and 2, it does not appear that the initial tension of the coating 22 "prevents the tubing 20 from stretching in use". The tubing is bent during use and therefore the tube 20 would have to stretch. Page 6, line 17, and page 7, line 1, what is meant by "high tension"? Does "initial tension" refer to the tension of the coating before it is put on the core?

Claims 1, 4-7, 9 and 10 are rejected as being indefinite. What is meant by an "initially" greater coefficient of elastic resilience and restitution than said coating. Does "initially" refer to the core before the coating is applied?

Claims 1, 4-7, 9 and 10 as understood are further rejected as being substantially met by Marshall. The core (c) of Marshall has a greater initial elastic limit 21 and force of restitution than the coating (a).

Albertson is cited to show a core and coating and the core having a greater initial elastic limit and force of restitution than said coating.

No claim is allowed.

E. V. BENHAM
Examiner

J. L. ASTRUP/am

Plaintiff's Exhibit 1.

22

Paper No. 6
Mar 5 - 1959 B
Div 11

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE

Applicant: John O. Crouse
Serial No.: 639,275
Filed: February 11, 1957
For: Flexible Tubing
Docket No.: 4249
Patent Division 11

Feb. 27, 1959

Commissioner of Patents,
Washington 25, D. C.

Sir:

In response to Office Action dated August 28, 1958, applicant begs to amend his above entitled application as follows:

In the Specification:

Page 2, line 2, substitute —reciprocable— for “reciprocating”; line 7, cancel “reducing the resilient qualities thereof” and substitute therefor —injury thereto—; line 9, cancel “has a high initial tension and”.

Page 3, delete lines 1, 2 and 3, lines 6 and 7 and lines 12 and 13; line 4 substitute the numeral —1— for the numeral “2”; line 8, substitute the numeral —2— for the numeral “4”; line 9, substitute the numeral —1— for the numeral

Plaintiff's Exhibit 1.

"2"; line 10 substitute the numeral —3— for the numeral "5".

Delete the entire recitation on page 4.

Page 5, delete lines 1 to 7 inclusive and substitute therefor the following:

23 — The flexible tubing of my invention as shown in the drawings, wherein all parts are indicated by like reference characters, and are all illustrated to the same scale, and from which drawings the said tubing can be constructed in variant sizes adaptable for different uses to which the push-pull control means of my invention may be applied, and more particularly for light, medium, or heavy duty uses and in any operative length. In the drawings the flexible tubing is shown in connection with a Bowdin control cable, and therefor the following description particularly relates to use in connection with Bowdin control, and like push-pull apparatus. —

Substitute —convolutions— for "coils" which occurs in each of the following pages:

Page 5, line 14;

Page 7, lines 5, 12, 16, 19, 20 and 22;

Page 5, line 8 delete "Figs. 2, 3, 4 and 5 and substitute therefor —the drawings—; line 10 insert after "wound" —closed type of helical—; same line before "metallic" insert —hard—; lines 10 and 11 delete "or similar material"; line 14 after "and has" insert —loosely—; line 16, delete "flat, rectangular or" and substitute —inside—; line 21 after "section." insert —The core wire is of substantially such large thickness relative to the interior of

Plaintiff's Exhibit 1.

the helix that the radial thickness of the core wire is at least not appreciably less than one-half of the dimension of the inside diameter of the core convolutions.—; line 25 after “state,” delete “and the” and substitute therefor—as is well known during molding by the extrusion process, the fluent plastic material under fluid pressure, is forced deeply into the helical interstices between the outer half surface portions of each contiguous pair of convolutions of the helical core and adheres thereto, thus
 24 forming a helical ridge 26 which is interposed between successive of the convolutions 23 of said core 21,—; delete lines 26 and 27.

Page 6, delete lines 1 to 4 inclusive and substitute therefor—each coil convolution being interposed between successive of the ridge convolutions whereby the wire core 21 and the coating 22 are interlocked against relative longitudinal movements.—; line 5 delete “inherently” and substitute therefor—laterally—; line 6 delete “stretching” and substitute therefor—lateral bending—; delete line 7; line 8 delete “it will acquire a ‘set’ or permanent deformation.”; line 12 delete “ridges” and substitute therefor—ridge convolutions—; line 14 delete “preferred”; lines 15 and 16 delete “is a vinyl having a Durometer reading of D-75 hardness.” and substitute therefor—is a polyethylene material of the medium density group.—; line 16 delete “vinyl”; lines 17 and 18 delete “has a high initial tension or resistance” and substitute therefor—is highly resistant—; line 22 change the period (.) to a comma (,) and add—being not subject to becoming brittle when exposed to exceedingly low atmospheric temperatures over long periods.—; same page, line 27 after “tubing” delete the remainder of the line and substitute therefor—which will

Plaintiff's Exhibit 1.

not be subject to stretching in use so as to alter its effective length and which is strongly resistant to bending of any portion of its length on a short radius and which is highly resistant to structural damage.—

Page 7, delete lines 1 to 3 inclusive and substitute therefor —The diametrical size of the core wire combined
 25 with the fact that successive convolutions of the core wire are strongly resiliently held against separation combines with the non-stretching characteristics of the coating to provide; delete lines 7 to 10 inclusive; line 11 delete the numeral "4" and substitute therefor the numeral —2—; line 12 after "tubing 20" insert —is of considerable diameter and—; same line after "bent" cancel the comma (,) and insert —on a shorter radius than is warranted by the diameter of the tubing that—; same line after the numeral "23" insert —tend to—; line 21, cancel "ridges" and substitute therefor —helical ridge—; delete lines 28 and 29.

Page 8, delete lines 1 to 11 inclusive; same page, delete lines 12 to 15 inclusive and the recitation "that the coating may be of any desired thickness." in line 16 and substitute therefor the following:

—It will be understood from the forgoing description that the flexible tubing of my invention may be of variant diameters and the coating may be of any desired thickness whereas I consider it important that the relative dimensions set forth herein for the core wire thickness, and the inside diameter of the core helix be maintained.—

In the Claims:

Cancel claims 1, 4-7, 9 and 10 at present in this case and substitute therefor the following claim:

Plaintiff's Exhibit 1.

—11. A laterally resiliently flexible tubular housing, a Bowdin control wire cable projected longitudinally there-through, said housing comprising a closed helical spring wire core whose successive convolutions are laterally resiliently maintained in lateral contiguous spring pressed
26 engagement with each other, said cable wire being adjustably directively slidable over the interior surfaces of said core, and a housing cover of elastomeric substantially stretch-resistant plastic material molded upon the outer surfaces of said core, and said plastic material penetrating into the outwardly facing V-shaped interstices between successive pairs of said core convolutions and forming a helical inwardly directed longitudinally extending helix of cover material, which is complementary to and extends within the helical recess provided between adjacent outer surfaces of successive of said core convolutions, the spring wire of said core being of such sufficient thickness which is not appreciably less than one-half of the inside diameter of the helical core.

Respectfully submitted,

JOHN O. CROUSE

By: FRANK M. SLOUGH and
J. H. SLOUGH, Attorneys of Record
Frank M. Slough
Frank M. Slough

REMARKS

In view of the Office Action of August 28, 1958, the present specification and claims have been carefully examined as have the references cited by the Examiner and as a result of a conference with the applicant it has been discovered that an important feature of applicant's invention,

Plaintiff's Exhibit 1.

to wit: the relative dimension of the core helix interior diameter and the diameter of the helix wire has not heretofore been claimed, this being by inadvertence and mistake on the part of applicant's attorneys of record. It
27 was also discovered that certain of the drawings are unnecessary or are not important to the present application, these being original Figures 1, 3 and 6. Fig. 1 is unimportant because it does not show with any clarity the inventive subject matter of the present application. Fig. 3 of the drawings originally filed is a distorted showing which does not add to the disclosure of originally filed Figs. 2, 4 and 5 and Fig. 6, originally filed, does not involve the same invention as is now claimed. Therefore, there remains only former Figures 2, 4 and 5 which are now renumbered as Figs. 1, 2 and 3. The Official Draftsman has been instructed to make a new drawing in which former Figs. 2, 4 and 5 alone remain and has been instructed to renumber said figures as Figs. 1, 2 and 3, and to redraw Fig. 4, (now Fig. 2) in accordance with the sketch, submitted.

The specification has been amended in accordance with the changes to the figure drawing designations and has been amended further to more fully explain that feature of the invention which involves the co-relative dimensions of the core wire and core helix as clearly shown by the drawings, and which contribute greatly to performance of the tubing while in use. The nomenclature which occurred frequently in the specification and claims relating to tensions, etc., has been eliminated and more readily understandable phrasing has been substituted therefor.

The claims of the present application have all been cancelled by the foregoing amendment and a single more

Plaintiff's Exhibit 1.

limited claim substituted, viz. claim 11. The utility of the preferred dimensioning of the core wire in terms of helix dimensions has been fully explained by the foregoing amendment to the application and the relationship between successive convolutions of the core helix and the non-
28 stretchable cover has been recited at length so that the Examiner will readily understand and appreciate the improvement afforded by such dimensional characteristics of the core wire and helix.

A review of all of the prior art patents previously cited by the Examiner and other patents which applicant and his attorneys of record have knowledge reveals that this dimensional characteristic is novel and extremely important to the efficiency of the tubing.

A Supplemental Oath having to do with the dimensional relations of the helix wire and the helix, the amendment to the figures of drawings, the amendment to the specification relative to the use of polyethylene plastic material for use in the coating, is submitted herewith, testifying that applicant's inventive use thereof was being commercially practiced prior to the date of filing of his above entitled application but after the execution date thereof, and through oversight the correction was not applied to his specification as filed.

It is hoped that the Examiner will now pass the above entitled application to issue.

Respectfully submitted,

FRANK M. SLOUGH & J. H. SLOUGH

Attorneys of Record

Per FRANK M. SLOUGH

Frank M. Slough

February 27, 1959

Plaintiff's Exhibit 1.

29

Paper No. Oath
Mar 5 - 1959
Div 11

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE

District of Columbia: ss

SUPPLEMENTAL OATH

JOHN O. CROUSE, whose application for Letters Patent for an improvement in FLEXIBLE TUBING, Serial No. 639,275 was filed in the United States Patent Office on or about the 11th day of February, 1957, being duly sworn, deposes and says that the portions of the specification description and the subject matter of the presently submitted single claim 11 relating to the use by him of polyethylene plastic material instead of the vinyl plastic material, as set forth in the specification as originally filed, was practiced commercially by him prior to the date of filing of his above entitled application; that the corrections to renumbered Figs. 1 and 2 as outlined in the attached amendment and Letter to the Official Draftsman dated the 27th day of February, 1959, and the changes to the specification and incorporated in the newly submitted claim 11 relating to the relative dimensions of the convolution wire and helix were a part of his original invention and were invented and reduced to commercial practice prior to the filing date of his above identified application; that he does not know and does not believe that the same was ever known or used before his invention thereof; or patented or described in any printed publication in any country before his invention thereof, or more than one year before his application, or

Plaintiff's Exhibit 1.

in public use or on sale in the United States more than one
year before the date of his application, that said invention
has not been patented before the date of said appli-
30 cation in any foreign country on an application filed
by himself or his legal representatives or assigns
more than twelve months prior to his application in the
United States, and has not been abandoned.

JOHN O. CROUSE

Sworn to and subscribed before me this 28th day of
February, 1959.

MARIE MUNOZ

Notary Public

(SEAL)

My Commission Expires Dec. 15, 1961.

31

Paper No. 7

Mar 5 - 1959

Div 11

DEPARTMENT OF COMMERCE

UNITED STATES PATENT OFFICE

Applicant: John O. Crouse; Serial No.: 639,275; Filed:
February 11, 1957; Docket No.: 4249; For: FLEXIBLE
TUBING

Patent Division 11

Plaintiff's Exhibit 1.

Commissioner of Patents,
Washington 25, D.C.

Dear Sir:

ATTENTION OFFICIAL DRAFTSMAN

The Official Draftman is requested to correct the drawings as originally filed in the above identified application to make a new drawing from which Figs. 1, 3 and 6 are deleted and in which the material of the coating or housing 20 penetrates inwardly of the helical wire convolutions to the extent which is indicated in red ink on the attached copy of the original Fig. 2 of said drawings. A redrawing of former Fig. 4, as now Fig. 2, is now requested according to the attached sketch. It is desired that the core material extend to medial transverse diameter of the outer surface of the coil convolutions. This will require that former Fig. 2 of the drawings be renumbered as Fig. 1; former Fig. 4 as re-drawn, shall be designated as Fig. 2 and former Fig. 5 will be designated as Fig. 3.

Kindly charge the cost of the above to the account of the undersigned attorneys of record. Account No. 19-2525.

Respectfully requested,

JOHN O. CROUSE

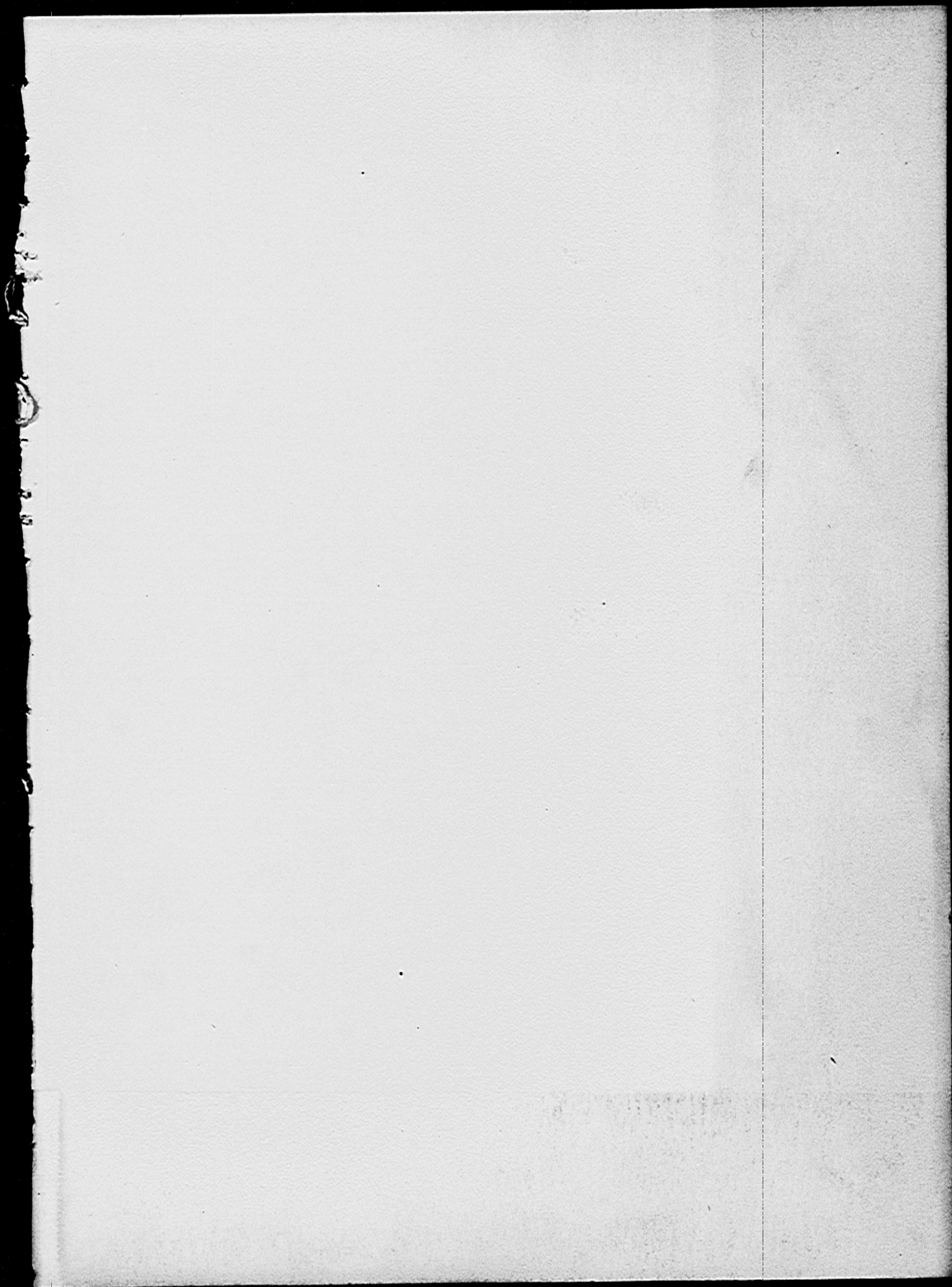
By: FRANK M. SLOUGH and J. H. SLOUGH,

Attorneys of Record.

Frank M. Slough

Frank M. Slough

February 27, 1959



Boat

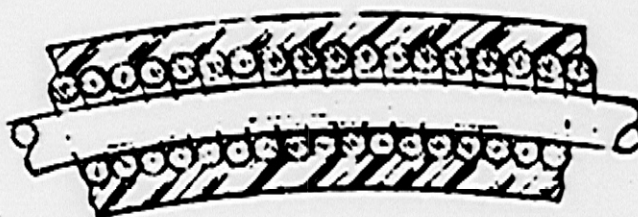


Fig 4

Kee of 1/1/19



Fig-1

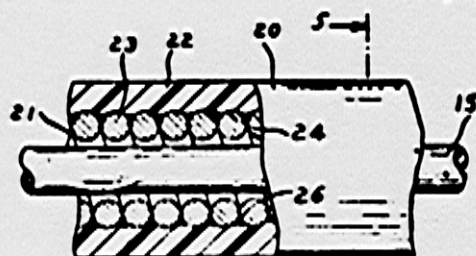


Fig-2

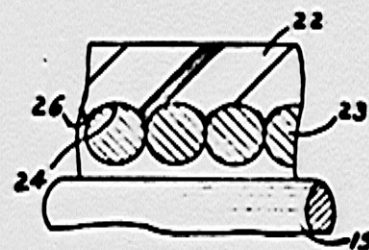


Fig-3

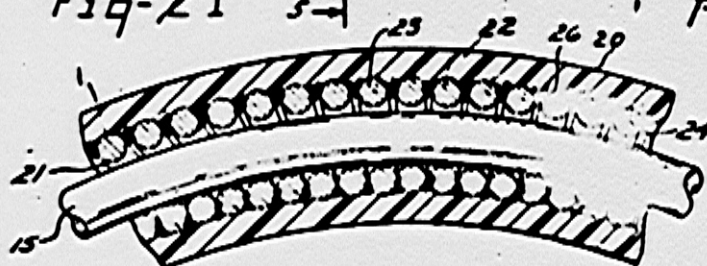


Fig-4



Fig-5

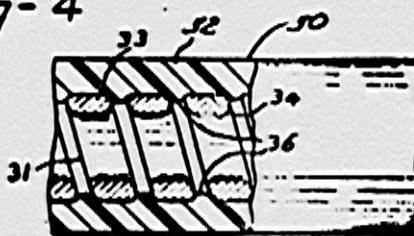


Fig-6

Not approved



Fig-1

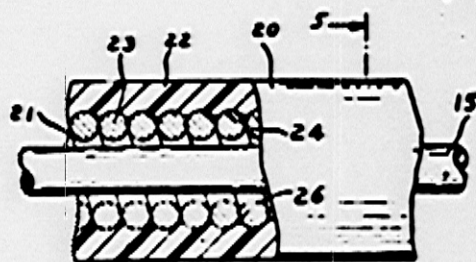


Fig-2

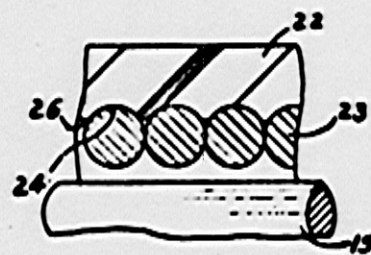


Fig-3

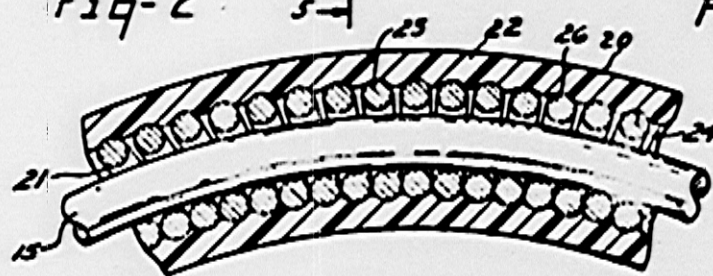


Fig-4

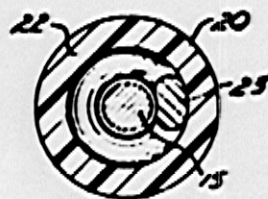


Fig-5



Fig-6

Plaintiff's Exhibit 1.

35 U. S. DEPARTMENT OF COMMERCE
PATENT OFFICE
Washington

Frank M. Slough
& J. H. Slough
602 B. F. Keith Bldg.
Cleveland 15, Ohio

Paper No. 8

Mailed
Mar 19 1959
Pat Div 12

Applicant:
John O. Crouse

Ser. No.
639,275

Filed
February 11, 1957

For
FLEXIBLE TUBING

Please find below a communication from the EXAMINER
in charge of this application.

ROBERT C. WATSON
Commissioner of Patents.

Responsive to amendment filed March 2, 1959.

Claims 1-10 have been cancelled.

Remaining claim 11 is rejected as being drawn to new
matter. The new matter (i.e., the recitation of the poly-
ethylene plastic material instead of the vinyl plastic mater-

Plaintiff's Exhibit 1.

ial and the recitation of the relative dimensions of the convolution wire and helix wire) must be deleted from the specification and claim.

No claim is allowed.

S. SPINTMAN
Examiner

W F WESSENDORF
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DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE

U. S. Patent Office
Aug 6 1959
Division 12 — Paper No. 9

Applicant: John O. Crouse; Serial No.: 639,275; Filed:
February 11, 1957; For: FLEXIBLE TUBING; Docket
No.: 4249

Patent Division 12

Commissioner of Patents
Washington 25, D.C.

August 3, 1959
Cleveland 15, Ohio

POWER TO INSPECT AND COPY

We, the undersigned attorneys for applicant in the above entitled application, hereby authorize and empower Peter N. Lalos, 2500 25th Street N., Arlington, Virginia, to inspect and copy Office Actions dated October 15, 1957 and August 28, 1958, respectively, and each and every response filed thereto by applicant and/or any other document filed

Plaintiff's Exhibit 1.

on behalf of the applicant since the date of filing in addition to those specified hereinbefore, of the above entitled application now pending in the United States Patent Office.

FRANK M. SLOUGH and
J. H. SLOUGH

FRANK M. SLOUGH & J. H. SLOUGH
Applicant's Attorneys of Record

Dated: August 3, 1959

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DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE

U. S. Patent Office
Sep 14 1959
Division 12 — Paper No. 10
Amendment C
& 2 affidavits

Applicant: John O. Crouse; Serial No.: 639,275; Filed:
February 11th, 1957; For: FLEXIBLE TUBING; Docket
No.: 4249

Patent Division: 12.

September 8, 1959

Commissioner of Patents,
Washington 25, D. C.

Sir:

In response to Office Action dated March 19, 1959, applicant begs to amend his above entitled application, in the following particulars:

*Plaintiff's Exhibit 1.**In the Specification:*

Page 5, line 21, following "section", delete "appreciably" which is a portion of a previously submitted amendatory insertion, and now substitute —substantially— so that such insertion will now read . . . The core wire is of substantially such large thickness relative to the interior of the helix that the diameter of the core wire is at least not substantially less than one-half of the dimension of the inside diameter of the core convolutions. . . .

Page 6, lines 15 and 16, delete "is a polyethylene material of the medium density group" and substitute —is a vinyl having a Durometer reading of D-75 hardness—.

In Claim 11:

In the next to the last line, delete "appreciably", and substitute —substantially—.

Respectfully submitted,

JOHN O. CROUSE

By: FRANK M. SLOUGH and J. H. SLOUGH,
Attorneys of Record
Frank M. Slough
Frank M. Slough

C

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REMARKS

The present amendment is directed to the holding that the recitation of the polyethylene plastic material instead of the vinyl plastic material is new matter, even though the objected-to plastic material is not specifically claimed, and

Plaintiff's Exhibit 1.

even though the same is supported by a supplemental oath; but in any event, the descriptive specification is now, with respect to the plastic material, restored to the disclosure of the vinyl just as originally presented. Applicant used both types of plastic material before filing his application, during the few months preceding such filing. Either plastic material supports the claim, which is not specific to either, and the claim would cover use of other plastic materials.

With respect to the relative dimensions of the coil wire affidavits of applicant and of Edward A. Hayman, the latter being responsible for the making of the application drawings, are tendered herewith to show that the drawings were *intentionally* so made that the relatively dimensioned *coil wire and the inside diameter of the helix* are shown to the same scale, and whereby the drawings can be scaled to enable one to make the article in various sizes, and in each case to ensure that the plastic cover and the helix are interlocked to the maximum degree.

This feature was also made the subject of the supplemental oath, previously filed, being of the essence of applicant's invention, claimed in Claim 11, and, it is submitted does not involve "new matter", nor is it anticipated by any prior art known to applicant.

Respectfully submitted,

FRANK M. SLOUGH

FRANK M. SLOUGH
of Attorneys of Record

Plaintiff's Exhibit 1.

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DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICEU. S. Patent Office
Sep 14 1959
Division 12 — Paper No.

Applicant: John O. Crouse; Serial No.: 639,275; Filed:
February 11, 1957; For: FLEXIBLE TUBING; Docket
No.: 4249

State of Ohio
County of Cuyahoga } ss.:

AFFIDAVIT OF EDWARD A. HAYMAN

EDWARD A. HAYMAN, being first duly sworn, deposes and says: that during the period between September, 1947 and August, 1956, I was continuously engaged in the making of patent drawings for various attorneys in Cleveland, Ohio, who were representing clients before the United States Patent Office, and immediately following said period I became employed by Slough and Slough, a firm of attorneys having offices at 602 B. F. Keith Building, Cleveland, Ohio, and am still so employed; that my duties with said firm included directing and supervising of patent drawings made by patent draftsmen for clients of said firm, that during or about the month of January, 1957, being in charge of the securing of patent drawings for the firm of Slough and Slough, the members thereof being Frank M. Slough and J. H. Slough, I did authorize and direct the making of patent drawings which were filed with the above identified application in the United States Patent Office; that the

Plaintiff's Exhibit 1.

drawings were based upon a sample of the improved flexible tubing which is the subject of the above identified application which was received from John O. Crouse of Mansfield, Ohio, applicant of said above identified application and known to me as a client of said firm, that I was informed and understood that said sample was so constructed that a closed helix of steel wire was covered by a coating of plastic material molded thereover, and which penetrated into the exterior helical spaces between successive convolutions of said helix, and also that this construction caused the helix and cover to be longitudinally interlocked, and that the substantially large diameter of the wire of said convolutions contributed to the effectiveness of such interlock, and therefore I intentionally caused the drawings and especially the enlarged sectional views of Figs. 2 and 5, to be so made, in accordance with said sample, that the diameter of the convoluted wire of the helix should be shown as equal to one-half ($\frac{1}{2}$) of the inside diameter of the helix.

Further deponent sayeth naught.

EDWARD A. HAYMAN

EDWARD A. HAYMAN

Sworn to and subscribed before me this 28th day of August, 1959.

WM. A. WEISS

Notary Public

(SEAL)

My commission expires Sept. 20, 1959.

Plaintiff's Exhibit 1.

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DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICEU. S. Patent Office
Sep 14 1959
Division 12—Paper No.State of Ohio }
County of Richland } ss.:*AFFIDAVIT OF JOHN O. CROUSE*

JOHN O. CROUSE, being first duly sworn, deposes and says:

I am the applicant of an application for United States Letters Patent, for an improvement in Flexible Tubing, which application was filed in the United States Patent Office on February 11, 1957, and further identified as Serial No. 639,275; and prior to the filing thereof, I was permitted by the attorneys of record therein to discuss the making of the drawings for said application with Edward A. Hayman, who, I was advised, would have charge of the making of the drawings from a sample of said flexible tubing, which I had supplied. Since I was told that the drawing views would be on an enlarged scale as compared to said sample, I told said Edward A. Hayman to be careful to show all parts of the sample to the same enlarged scale since the relative dimensions of the different parts was very important to the proper operation of the complete assembly of parts. Said Hayman assured me that he would follow this instruction, and sometime thereafter, I checked the completed drawings at the time I executed the application oath, which I am not told was on

Plaintiff's Exhibit 1.

January 18th, 1957, and ascertained that my instructions had been carried out.

Further deponent sayeth naught.

JOHN O. CROUSE

Sworn to and subscribed before me this 29th day of July 1959.

EULALIA WILSON

Notary Public

(SEAL)

My Commission expires 1-15-60

42 U. S. DEPARTMENT OF COMMERCE

PATENT OFFICE

Washington

Frank M. Slough & J. H. Slough
602 B. F. Keith Building
Cleveland 15, Ohio

PAPER No. 11

Applicant:

John O. Crouse

Ser. No.

639,275

Filed

February 11, 1957

For

FLEXIBLE TUBING

Mailed

Sep 30 1959

Pat Div 12

Plaintiff's Exhibit 1.

Please find below a communication from the *EXAMINER* in charge of this application.

ROBERT C. WATSON
Commissioner of Patents.

Responsive to amendment filed September 8, 1959.

References Relied on:

Schmid et al	2,210,733	Aug. 6, 1940	74-501
Bentley	2,774,382	Dec. 18, 1956	74-501

Claim 11 remains in this case.

Claim 11 is rejected as being unpatentable over Schmid et al in view of Marshall of record and Bentley. It would produce no new, unobvious, or unforeseen result to apply the sleeve 34 of Fig. 5 of Schmid et al in the manner illustrated by Marshall. The application of the sleeve may be by the process of either extrusion or molding as taught by Bentley. Since claim 11 is directed to the finished product the manner of applying the sleeve is not a material or patentable limitation. The steps involved in manufacture are significant only in claims directed to the method of making the article. The choice of a known material of known properties for the sleeve involves only mechanical skill.

Claim 11 is further rejected as defining new matter. There is no competent disclosure in the *original* papers to support the dimensional limitations recited at the end of the claim. The matter of new matter must be determined with reference to the original disclosure. 35 U. S. C. 132, Rule 118 of the Rules of Practice, Sections —608.04-608.04 (b) M. P. E. P. 2nd Ed.

Plaintiff's Exhibit 1.

43 Applicant's original specification is silent as to such dimensions and applicant is required to cancel all amendatory matter (page 5, line 21, for example) introducing such disclosure because it is new matter. Ex parte Cherry 25 U. S. P. Q. 48.

Applicant's drawings are not deemed competent as a disclosure for the specific dimensions recited by claim 11 for the reasons indicated in ex parte Sheldon 89 U. S. P. Q. 441, and In re Olson 101 U. S. P. Q. 401.

No amendment, whether or not supported by affidavit, can remedy the failure to incorporate the matter in question in the original disclosure, whether the omission was inadvertent or otherwise. Dow v. Converse 106 O. G. 2291, 1903 C. D. 404.

Claims 1-10 have been cancelled.

No claims are allowed.

B. G. DURHAM
Actg. Examiner

BGDurham/pw

Plaintiff's Exhibit 1.

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DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE

Applicant: John O. Crouse; Serial No.: 639,275; Filed:
February 11, 1957; For: FLEXIBLE TUBING Docket
No.: 4249; Patent Division: 12.

U. S. Patent Office
Apr 1 1960
Division 12—Paper No.
March 26, 1960

Commissioner of Patents,
Washington 25, D. C.

Sir:

In response to Office Action dated September 30, 1959, applicant begs to amend his above entitled application in the following particulars:

Substitute for the previously submitted Claim, 11, the following Claims 12, and 13, as follows:

Claim 12. A laterally flexible, and substantially non-extensible tubular housing for a Bowdin control wire, comprising a spring wire helix whose successive convolutions are resiliently maintained in lateral, contiguous, spring pressed engagement with each other, the interior of said helix providing a slide-way on which a said control wire may be longitudinally adjusted, and a substantially thick-walled coating of a plastic material being applied over all outwardly presented surfaces of said helix, being solidified in situ, and having physical properties generally corresponding to those possessed, to a substantial degree, by a vinyl having a durometer hardness rating of D-75,

Plaintiff's Exhibit 1.

said coating being closely fitted within the exteriorly presented recesses between all pairs of successive helix convolutions, to longitudinally interlock said helix and coating, said coating being substantially non-stretchable, and preventing longitudinal stretching of said helix.

45 Claim 13. The laterally flexible and substantially non-extensible tubular housing for a Bowdin control wire, substantially as set forth in Claim 12, and being further characterized by the limitation that the diameter of the helix wire be not substantially less than that dimension which is one-half of the diameter of the recited slide-way.

REMARKS

The Examiners holding that the included dimensions of Claim 11, involve new matter is respectfully traversed.

Rule 118, cited in support of such holding, on the contrary, supports applicant's contention, that anything disclosed in the drawings or the specification, may by amendment, be inserted in the other. An applicant filing scaled drawing views should not be penalized by the fact that others make mere pictorial views, or mere sketches.

Commonly such others state the fact that certain views are other than the more exacting types, but in any event applicant here stated for Fig. 2, that it was "an enlarged" view, that Fig. 3 was a "further enlarged" view, and that Fig. 5 was "a transverse sectional" view taken on the line 5-5, of Fig. 2, Fig. 4 being stated to be another sectional view likened to Fig. 2.

So, in the original drawings the solid basis for scaling the drawings, readily, easily, even without a ruler, or

Plaintiff's Exhibit 1.

draftsman's compass—Fig. 3 being the only view not asserted to be of like scale to the above others.

The citations, of prior decisions, are not applicable here, —to defeat applicant since the facts are different, a legal maxim is appropriate, "Bad cases make for bad law."

It is the straining of words in such decided cases, and the overlooking of differences from the previously decided cases, that frequently defeats later meritorious cases.

In our case here, "thousandths of an inch" are not involved, as in *In Re Olson*.

46 The case of *In re—Olson* holds favorably to applicant's contentions here. In the court's decision, section at (1), states "The board correctly held, however, that it is proper in support of claims which otherwise could not be allowed, to amend the specification to include new matter clearly and conclusively disclosed by the drawings. (Cases cited in support). In that case the dimensions were of the "order of a few thousandths of an inch" and scaling was not practical.

At this time the references relied upon are the following: Marshall—2,550,576; Schmid et al—2,210,733; and Bentley 2,774,382; to wit: Schmid et al in view of Marshall and Bentley.

More particularly, the rejection asserts that "it would produce no new, unobvious, or unforeseen result to apply the sleeve of Schmid et al in the manner illustrated by Marshall, and that the application of the sleeve may be by the process of either extrusion or molding as taught by Bentley.

Plaintiff's Exhibit 1.

The above leaves the strong inference that the Examiner agrees with applicant that none of the three references have applicant's structure, which is entirely true.

Marshall's "cording" is extensible, Bentley merely used his asserted knowledge of extrusion or molding to cover stranded cable wire, thread, or the like in the wall of the casing, and Schmid et al used a rubber casing cover. Can it be inferred that the minds of these three patentees, or any thereof, contained any conception of applicant's construction?

Allowance of applicant's application, is respectfully requested.

Respectfully Submitted,

FRANK M. SLOUGH & J. H. SLOUGH

By FRANK M. SLOUGH
Of Attorneys for Applicant

Plaintiff's Exhibit 1.

47 U. S. DEPARTMENT OF COMMERCE
PATENT OFFICE
Washington

Frank M. Slough & J. H. Slough
602 B. F. Keith Building
Cleveland 15, Ohio

Paper No. 13
Mailed
Apr 6 1960.
Pat Div 12

Applicant:
John O. Crouse

Ser. No.
639,275

Filed
February 11, 1957

For
FLEXIBLE TUBING

Please find below a communication from the *EX-AMINER* in charge of this application.

ROBERT C. WATSON
Commissioner of Patents.

Responsive to amendment filed March 29, 1960.

Claims 12 and 13 remain in this case.

It is noted that the Official Draftsman objects to the drawings because the lines are rough and blurred in parts, parts in section must be hatched, hatching is too wide in parts. Correction is required but will be deferred pending allowance of a claim.

Plaintiff's Exhibit 1.

The requirement for cancellation of all matter not conforming to the original disclosure is repeated and made final.

Claims 12 and 13 are finally rejected as being unpatentable over the references and for the reasons of record with respect to claim 11.

Nowhere, in the original papers, does the examiner find any suggestion that the drawings are to scale. Statements relative to certain figures being "enlarged" is not a statement that any figures are drawn to scale. Obviously, nonscaled enlargements may be shown. Therefore, applicant's arguments are not convincing.

Claims 1-11 have been cancelled.

No claims are allowed.

Claims 12 and 13 are *finally rejected*.

B. G. DURHAM,
Actg Examiner

B. G. Durham/pw

Plaintiff's Exhibit 1.

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DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE

Appeal No. 401 65

In re-Application of John O. Crouse; Serial No. 639,275;
Filed: Feb. 11, 1957; For Flexible Tubing.

Docket No. 4249

PATENT DIVISION-12

October 3, 1960.

To the Commissioner of Patents,
Washington, 25, D. C.

Sir:

Applicant in the above entitled Case, hereby appeals to
the Board of Appeals from the decision of the principal
examiner finally rejecting Claims 12 and 13, of the above-
entitled application.

JOHN O. CROUSE, Applicant,

By FRANK M. SLOUGH and J. H. SLOUGH,
Attorneys of Record.

Frank M. Slough.

Payment of the Appeal fee is enclosed in the amount of
\$25.00.

FRANK M. SLOUGH.

*Plaintiff's Exhibit 1.*49 DEPARTMENT OF COMMERCE
 UNITED STATES PATENT OFFICE

Applicant: John O. Crouse; Serial No.: 639,275; Filed:
February 11, 1957; For: Flexible Tubing; Docket No.:
4249; Patent Division: 12.

BEFORE THE BOARD OF APPEALS
APPEAL NO. 40165

*APPLICANT'S BRIEF ON APPEAL FROM FINAL
REJECTION*

Now comes the appellant, John O. Crouse, by his attorneys of record, undersigned, and respectfully appears from the final rejection of Claims 12 and 13 of the above-entitled application, for the asserted reason that these claims are "unpatentable over the references and for the reasons of record with respect to Claim 11".

Claims 12 and 13 on appeal are reproduced herein below:

12. A laterally flexible, and substantially non-extensible tubular housing for a Bowdin control wire, comprising a spring wire helix whose successive convolutions are resiliently maintained in lateral, contiguous, spring pressed engagement with each other, the interior of said helix providing a slide-way on which a said control wire may be longitudinally adjusted, and a substantially thick-walled coating of a plastic material being applied over all outwardly presented surfaces of said helix, being solidified in situ, and having physical properties generally corresponding to those possessed, to a substantial degree, by a

Plaintiff's Exhibit 1.

vinyl having a durometer hardness rating of D-75, said coating being closely fitted within the exteriorly presented recesses between all pairs of successive helix convolutions, to longitudinally interlock said helix and coating, said coating being substantially non-stretchable, and preventing longitudinal stretching of said helix.

50 13. The laterally flexible and substantially non-extensible tubular housing for a Bowdin control wire, substantially as set forth in Claim 12, and being further characterized by the limitation that the diameter of the helix wire be not substantially less than that dimension which is one-half of the diameter of the recited slide-way.

Claim 11, in the Office Action of September 30, 1959, was rejected as being "unpatentable over prior patents, to-wit: SCHMID ET AL No. 2,210,733 August 6, 1940, in view of the following:

MARSHALL 2,550,576 April 24, 1951, and
BENTLEY 2,774,382 December 18, 1956

Concerning this ground of rejection the Examiner stated: "It would produce no new, unobvious, or unforeseen result to apply the sleeve 34 of Fig. 5 of Schmid et al in the manner illustrated by Marshall. The application of the sleeve may be by the process of either extrusion or molding as taught by Bentley. Since Claim 11 is directed to the finished product the manner of applying the sleeve is not a material or patentable limitation. The steps involved in manufacture are significant only in claims directed to the method of making the article. The choice of known properties for the sleeve involves only mechanical skill."

Plaintiff's Exhibit 1.

This claim 11 was "further rejected as defining new matter" it being stated . . . "There is no competent disclosure in the original papers to support the dimensional limitations recited at the end of the claim".

It may now be said that the feature of "dimensional limitations", is not contained in Claim 12, but is contained in Claim 13, the rejection of Claim 12 being based entirely on the three above identified prior patents.

51 The structure of Claim 12 which is novel over the references consists in the longitudinal interlock between the substantially non-stretchable coating and the longitudinally stretchable helix covered by the coating, whereby more expensive construction to prevent elongation of the covered helix is not necessary.

This feature of non-stretching of the Casing for the Bowdin type of push-pull is thus achieved in a manner more durable, and inexpensive than ever before. In prior Casings for Bowdin type structures this result has often been attempted, at higher cost, by the method and structure of the Bentley reference patent of record, where wires such as the stranded wire arrangement, are required to promote tensile strength, of the casing. The Schmidt patent cited here, employs a *rubber* tube to cover the interiorly disposed helix 35, and the elastic rubber certainly cannot prevent stretching of the casing 34, except to a slight degree.

Reconstruction of Schmid et al's structure as now envisioned, in the light of the cited Marshall patent, would merely produce Marshall's longitudinally stretchable casing, of like "elastomeric" material.

Plaintiff's Exhibit 1.

Referring now to the Marshall patent, first one finds that the Marshall structure, by virtue of the material of the cover being "plasticised" to such an extent that, and for the purpose avowed in the patent, so that the "elastomeric" material thereof will stretch in unison with the stretching of the helical wire in use, being designed for that purpose only.

Note here the use "as a clothes line", where such stretching is lauded, in the last paragraph of the Marshall specification, and in the claims where such stretching is claimed. Marshall uses the word "elastomeric", to
52 characterize the property of elasticity, which is sought.

We respectfully submit that none of the references upon which the Final Rejection, here, is based cause the Claim 12, to be anticipated and non-patentable.

Having disposed of the patents on which rejection of Claim 12 is alone based, we submit, most respectfully, that Claim 12, at least, should be allowed.

Claim 13 consists of the text of Claim 12, which is its preamble, plus the so-called "dimensional limitation" which the Examiner asserts was not in the original "disclosure of the application, and must therefore is treated as "new matter".

The question of whether anything disclosed in the drawings, but not originally described in the specification, or originally claimed, seems never *finally* decided. We are impressed by the following in the text at Sec. 127A. of "Patent Soliciting and Examining", by Glascock &

Plaintiff's Exhibit 1.

Stringham, (1934), which is today as pertinent, as ever, to-wit:

"One of the most utterly baseless contentions ever made in patent law was the contention that anticipation could not be found in a drawing, alone" . . . "Drawings are the language of the Engineer, as they are of the biologist, words are far less effective than drawings in describing the apparatus of a curtain shade roller or the skeleton of a fish. A decision that an invention could not be found in words would be bad, but a decision that it could never be found in drawings alone would be worse."

The Examiner has asserted that these drawings are not scaled drawings, since scaled drawings are not necessary for patent drawings. This seems to be rather strange, since Figs. 2, 3 and 4, all being sectional views, are so made that they are readily compared, as to scale, and all of these show the same parts to the same dimensions. The parts shown bear the same relation to each other, in the different views, and the diameter of the helix wire, as sought to be claimed, in each of Figures 2, 3, and 4. All tubing being manufactured and which from before the application was filed, has these same relation of claimed dimensions. Any mechanic or engineer skilled in the art would readily understand that these are scaled drawings.

The "dimensional" limitation at the end of Claim 13, is not of the nature of those referred to in the cited case of *In re Olson*, "where dimensions are of the order of a few thousandths of an inch".

Plaintiff's Exhibit 1.

Incidentally, but importantly, the syllabus of *In re Olson* states:

"Although 35 U.S.C. 132 provides that no amendment to application shall introduce new matter into disclosure of invention, it is proper, in support of claims which otherwise could not be allowed, to amend specification to include new matter clearly and conclusively disclosed by drawings."

In the present case, the drawings *clearly and conclusively* disclose the dimensional limitation, as stated at the dependent portion of the Claim 13, and therefore the Office should uphold appellant's insertion with supplemental oath, which is now *finally* required to be expunged from the specification.

Again the attention of the Board is directed to the specification numbered page 2, wherein is stated: "Still other objects of my invention and the invention itself will be readily understood by a study of the appended description, and the accompanying drawings."

For the reasons, aforesaid, this Honorable Board is requested to hold that Claim 12, is patentable over the prior art reference patents cited, by the Examiner, as containing disclosures anticipatory thereof.

54 Also this Honorable Board is respectfully requested to hold that Claim 13, rejected by the Examiner as not being for subject matter not competently disclosed in the originally filed application, is in fact adequately disclosed by the drawings, and that the amendment to the specification which is supported by a supple-

Plaintiff's Exhibit 1.

mental oath, duly filed, may be retained as a part of the specification, and such claim should, therefore, be allowed.

Respectfully submitted,

JOHN O. CROUSE, Appellant

By: SLOUGH AND SLOUGH

His Attorneys of Record

Per Frank M. Slough

Frank M. Slough

55 U. S. DEPARTMENT OF COMMERCE
PATENT OFFICE
Washington

In re application of John O. Crouse; Ser. No. 639,275;
Filed: February 11, 1957; For: FLEXIBLE TUBING.

Appeal No. 401-65

Before the Board of Appeals

Frank M. Slough & J. H. Slough for appellant

EXAMINER'S ANSWER

This is an appeal from the Final rejection of claims 12 and 13, these being all of the claims remaining in the application.

A correct copy of the claims appears on pages 1 and 2 of the brief.

Plaintiff's Exhibit 1.

The references of record relied on are:

Schmid et al	2,210,733	Aug. 6, 1940	74/501
Marshall	2,550,576	Apr. 24, 1951	138/56
Bentley	2,774,382	Dec. 18, 1956	138/56

Description of the Invention

The subject matter of the application relates to a tubing structure specifically designed to house a flexible control cable such as is commonly referred to as a Bowden cable. Such cables are commonly made of flexible wire and usually reciprocate along the longitudinal axis of the cable and tube, although rotation, or combined rotation and reciprocation of said cable within the tube is not precluded.

The cable is conventional.

56 The tube, as defined, comprises an inner spring wire helix 23 whose successive and adjacent convolutions are maintained in contiguous engagement with each other (Figures 2 and 4). This spring helix has an outer coating or Sheath 20, formed, in situ, thereon and being closely fitted within the exteriorly presented recesses or grooves defined by adjacent convolutions of the spring coil.

The coating is said to have physical properties generally corresponding to those possessed, to a substantial degree, by a vinyl having a durometer hardness rating of D-75, and substantially non-stretchable.

The material is not otherwise identified.

Description of the References

Schmid et al, in Figure 5, shows a Bowden type cable 22 within a tube comprising an inner helically coiled wire,

Plaintiff's Exhibit 1.

the successive contiguous coils 35 of which are in engagement. It is conventional in the art to use spring wire in the formation of such a helix coil. Schmid further shows a sheath 34 of rubber surrounding the wire coil as a protective water-proofing.

Schmid is relied on mainly as evidence of the analogy-existing between Bowden wire cable tubes and other tubing now to be described.

Marshall shows a tubing structure comprising a helically coiled *spring metal* wire having its adjacent or
57 contiguous convolutions C in engagement. Upon the outer surface of the helically coiled wire there is formed, *in situ*, a *vinyl* covering a, the inner surface of said covering being pressed into the helical outer grooves defined by contiguous contacting coils of the inner helical spring wire coil as indicated at b.

Marshall applies a *vinyl* coating a over a *coiled spring wire* which has contiguous coils c in contact. The vinyl coating is applied *in situ* by feeding the wire coil through a die having a somewhat larger diameter than the external diameter of the coil. The vinyl is forced under pressure into the outer helical grooves formed by adjacent convolutions of the wire coil as shown at b.

Bentley is relied on as further evidence that Marshall's tubing is *analogous* to the tubing in issue, it being noted that Marshall's tubing is stated to be for use as "flexible cording or rod material for clothes lines, cables, bracelets, suspending curtains and for like purposes".

Bentley's tubing is a tubing for a Bowden control cable made of *extruded plastic with wire reinforcement*. It will

Plaintiff's Exhibit 1.

be noted that Marshall's tubing and Bentley's tubing are both officially classified in class 138 subclass 56, and therefore Marshall's device is deemed to be quite analogous to the Bowden cable art.

Claim 12 was finally rejected as unpatentable over Schmid et al in view of Marshall and Bentley on the ground that it would produce no new, unobvious, or unforeseen result to apply the sleeve 34 of Figure 5 of Schmid et al in the manner disclosed by Marshall. The examiner considers the rejection as thus stated to be a good rejection that should, and would, be sustained.

However, upon further consideration and after applicant's substitution of claims 12 and 13 for finally rejected claim 11, it is noted that, except for the possible question of analogy, the Marshall patent alone is virtually a complete anticipation of the structure defined by claim 12. Therefore, the examiner desires to restate the rejection as follows:

Claim 12 is finally rejected as being unpatentable over Marshall which is deemed to be virtually a complete anticipation of the structure, reference being made to Schmid et al and Bentley merely as evidence of the analogy of Marshall's tubing with respect to Bowden cable tubing.

This is not a new rejection - In re Christenson, et al 77 U.S.P.Q. 108, and In re Cowles 70 U.S.P.Q. 419.

Marshall is applied to claim 12 as follows:

Item 1. A laterally flexible, and substantially non-extensible tubular housing for a Bowdin control wire, comprising—

Crouse Marshall

Plaintiff's Exhibit 1.

a spring wire helix whose successive convolutions are resiliently maintained in lateral, contiguous, spring Pressed engagement with each other, 21 C

Item 2. the interior of said helix providing a slide way on which a said control wire may be longitudinally adjusted,

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Item 3. and a substantially thick-walled coating of a plastic material being applied over all outwardly presented surfaces of said helix, 20 a

Item 4. being solidified in situ,

Item 5. and having physical properties generally corresponding to those possessed, to a substantial degree, by a vinyl having a durometer hardness rating of D-75,

Item 6. said coating being closely fitted within the exteriorly presented recesses between all pairs of successive helix convolutions, to longitudinally interlock said helix and coating, 26 b

Item 7. said coating being substantially non-stretchable and preventing longitudinal stretching of said helix.

With respect to the reference to substantial non-extensibility referred to in the claim introduction, and non-stretch-

Plaintiff's Exhibit 1.

ability in Item 7 it is observed that applicant's tube is *definitely stretchable* as seen in Figure 4 where the tube above the neutral plane or axis has coil portions separated and the sleeve upon said separated coil portions is obviously stretched. It follows that sufficient force applied along the tubing axis will stretch the tube.

Paragraph 5 of Marshall's specification is pertinent to the aforementioned non-extensibility or non-stretchability. The degree of stretchability is obviously determined by the amount of plasticizer used.

60 The foregoing remarks are further applicable to Item 5 relative to the *hardness* of the vinyl composition. If applicant's coating differs from coating a of Marshall it is a difference in degree only.

Relative to Item 1 of claim 12 the fourth paragraph of Marshall's specification clearly describes the helix as being identical to applicant's helix.

The reference in the claim preamble and in Item 2 to the Bowden cable use of the tubing is answered by a comparison of the references relied on, whereby it is obvious that Marshall's tubing is suited for such use, and such use is clearly indicated by the secondary reference.

With respect to Item 3- Marshall's coating a is substantially thickwalled and is applied over all outward surfaces of the helix c.

Items 4 and 6 are described in paragraph 10 of Marshall's specification.

Claim 13 is finally rejected as unpatentable over the references and for the reasons set forth with respect to

Plaintiff's Exhibit 1.

claim 12, it being observed that the specific proportions or dimensional relations set forth by claim 13 are not deemed to constitute patentable limitations in the instant environment and are furthermore shown by Schmid et al in Figure 5.

Claim 13 stands further finally rejected as being drawn to new matter. The examiner is unable to find in
61 any of the original papers any suggestion that the dimensional relations are critical, and nothing to *direct attention* to dimensional relationship or their significance. In such circumstances it is held to wholly immaterial that upon measurement, in response to applicant's belated appreciation of such relationships, and his direction of the examiner's attention thereto, the drawings may be found to have been drawn to scale and may disclose such relationships. Note - In re Olson 101 U.S.P.Q. 401; Thompson v. Dicke 940 C.D. 269, 277.

It is submitted that all of the final rejections should be sustained.

B. G. DURHAM
Actg Examiner

B. G. Durham:jhc
D. A. Waite, Conferree
T. W. Shear, Conferree

Plaintiff's Exhibit 1.

62 U. S. DEPARTMENT OF COMMERCE
U. S. PATENT OFFICE.

Board of Appeals
Feb 21 1961
U. S. Patent Office

In re application of: John O. Crouse; Serial No.: 639,275;
Filed: February 11, 1957; For: FLEXIBLE TUBING

Appeal No. 401-65

Before the Board of Appeals.

APPLICANT'S RESPONSE TO EXAMINER'S
ANSWER.

Now comes the Applicant, John O. Crouse, by his undersigned Attorneys of Record, and respectfully represents to your Honors, that the Examiner has erred in his asserted conclusions that Claims 12, and 13, are not patentable, for the reason that the invention defined thereby is disclosed in the following prior patents, to wit:

U. S. Patent to Marshall, No. 2,550,576, Apr. 24, 1951

U. S. Patent to Bentley, No. 2,774,382, Dec. 18, 1956

U. S. Patent to Schmid et al, 2,210,733 Aug. 6, 1940

Originally, the Examiner now states, that Claim 12 was finally rejected as unpatentable over Schmid et al, in view of Marshall and Bentley, on the ground that it would produce no new, unobvious result to apply the sleeve 34, of Fig. 5 of Schmid et al in the manner disclosed by Marshall.

Although this rejection is now replaced by a *new* rejection, "after further consideration," he "noted that, except for

Plaintiff's Exhibit 1.

the possible question of analogy, the Marshall patent, *alone*, is virtually a complete anticipation of the structure defined by Claim 12.

The Examiner now goes on to volunteer a restatement of the rejection, as follows:

Claim 12 is rejected as being unpatentable over Marshall which is deemed to be virtually a complete anticipation of the structure, reference being made to Schmid et al and Bentley merely as evidence of the analogy of Marshall's tubing with respect to Bowden cable tubing.

On behalf of Applicant, we accept the above new ground relied upon, in preference to the preceding former ground, by the Examiner, and will not protest, as well we might, this change of front proposed by the Examiner.

63 Applicant accepts the proposed restatement of his rejection, in good faith, and therefore proceeds to answer the same, under the presumption that the Examiner will now adhere to his restatement of the rejection of Claim 12.

At the same time, on behalf of the Applicant, and with reference to Item 7, of the columnar items on Page 5 of the Examiner's Answer, and with reference to the specification, as originally filed, at page 2, lines 10 and 11; page 4, lines 8 and 9; page 7, lines 2 and 3; it is expected that the Examiner will not object to a reading of the Claim with the words "in use" following the word "non-stretchable" of said Item 7.

Such construction of the meaning is obvious from the above listed occurrences, in the specification, and as a mat-

Plaintiff's Exhibit 1.

ter of common sense, since it is obvious that any elongated material may be stretched if sufficient force is applied along the tubing axis, as the Examiner clearly perceived as stated in the paragraph, following the tabular listing of "Items" at page 5 of his Answer. It can be assumed that this correction to the Claim will be approved, by this Honorable Board, as the omission of the words "in use" is clearly inadvertent, and no other meaning can properly be ascribed to this term "substantially non-stretchable" in view of the many repeated occurrences in the specification. Perhaps by an Examiner's amendment the claim can now be so amended, by approval of the Board, or until the case is returned to the Examiner, when amendment can be made, the claim can be assumed to have this correction.

Regretting the above referred-to inadvertent omission of the words "in use", but confident that the same can be cured, other points discussed by the Answer, will now receive attention.

Referring briefly first to the question of analogy, which the Examiner seems to deem important, it seems that the art of mechanical controls is far removed from those of bracelets, clothes lines, and the like mentioned in the U. S. patent to Marshall, but here we prefer to rely on the fact that the longitudinal elasticity of the Marshall "cording" disqualifies this patented structure from effective use
64 for the mechanical structure of a Bowdin control, and the Examiner can readily find that the casing of the Schmid patent, which is made of rubber, is analogous to the material employed by Marshall for his "cording".

The Marshall patent, 2550,576, is based, under the Convention upon British Patent 604,261, which is entitled

Plaintiff's Exhibit 1.

"Improvements in or relating to "Curtain Suspensions, Bracelets, Necklaces, Girdles, and the like articles"; the elasticity of the cording permits its use for such articles, including "snake charms" which "may be fastened around the head, neck, or waist of the wearer." Such uses make use of the inherent elasticity of the cording, to fit the portions of one's anatomy to which it is applied.

The rejection if based upon the Marshall elastic cording, applied to such uses, but not suitable for Bowdin control housings because of its predominant elastic qualities, cannot be properly sustained.

Respectfully Submitted,

JOHN O. CROUSE, Applicant

By his attorneys

FRANK M. and J. H. SLOUGH,

Frank M. Slough

Plaintiff's Exhibit 1.

65

Paper No. 18

MAILED
JAN 29 1962

Appeal No. 401-65

jbw

U. S. PATENT OFFICE
BOARD OF APPEALS

IN THE
UNITED STATES PATENT OFFICE

BEFORE THE BOARD OF APPEALS

Ex parte John O. Crouse

Application for Patent filed February 11, 1957, Serial
No. 639,275. Flexible Tubing.

Frank M. Slough and J. H. Slough for appellant.

Before Dracopoulos and Freehof, Examiners-in-Chief, and
Andrews, Acting Examiner-in-Chief.

Freehof, Examiner-in-Chief.

This is an appeal from the final rejection of claims 12
and 13, all the claims now in the case. No claims are
allowed.

Claim 12 is illustrative and reads as follows:

Plaintiff's Exhibit 1.

12. A laterally flexible, and substantially non-extensible tubular housing for a Bowdin control wire, comprising a spring wire helix whose successive convolutions are resiliently maintained in lateral, contiguous, spring pressed engagement with each other, the interior of said helix providing a slide-way on which a said control wire may be longitudinally adjusted, and a substantially thick-walled coating of a plastic material being applied over all outwardly presented surfaces of said helix, being solidified in situ, and having physical properties generally corresponding to those possessed, to a substantial degree, by a vinyl having a durometer hardness rating of D-75, said coating being closely fitted within the exteriorly presented recessed between all pairs of successive helix convolutions, to longitudinally interlock said helix and coating, said coating being substantially non-stretchable, and preventing longitudinal stretching of said helix.

References relied upon are:

Schmid et al.	2,210,733	Aug. 6, 1940
Marshall	2,550,576	Apr. 24, 1951
Bentley	2,774,382	Dec. 18, 1956

The subject matter claimed relates to a tubing structure which is designed to house a flexible control cable, such as a Bowden cable. The outer wall of the housing is formed from a plastic material. Further details are described by the Examiner in his answer.

Claims 12 and 13 were rejected by the Examiner as unpatentable over the above cited references. Claim 13 was

Plaintiff's Exhibit 1.

further rejected as being drawn to new matter. A description of the references and the manner in which the references have been applied to the claims are fully and clearly set forth in the Examiner's Answer to which reference is made.

A full consideration of the arguments presented by appellant, in his brief and reply brief, do not persuade us that the Examiner was in error in rejecting the claims, and the rejection will be sustained. We are in full agreement with the position taken by the Examiner.

The principal contention with respect to the question of patentability of the claims over the prior art resides in a consideration of the outer portion of Marshall's tubing, as compared to the corresponding element of appellant's housing as claimed. Appellant contends that his coating is "substantially non-stretchable." It is alleged that the Marshall coating does not have similar properties. It is also urged that the limitation "in use" should be
67 considered after the term "non-stretchable." Since such an amendment has not been entered by the Examiner we will not consider it as a limitation in the claim. Nevertheless, as will be apparent from our discussion, we do not consider the entry or non-entry of the amendment to be a matter which is decisive.

Appellant's contentions regarding the relative stretchability of his material and Marshall's material are entirely unconvincing. In the first place, neither the specification nor the claims define with sufficient particularity a specific plastic material which can be distinguished from the plastic material disclosed by Marshall. Appellant's

Plaintiff's Exhibit 1.

description of his plastic material as one having properties corresponding to "a vinyl having a durometer hardness rating of D-75," is entirely too indefinite since it does not define the composition of his plastic in a manner which can be distinguished from the plastic disclosed in Marshall. Marshall's plastic is described as a vinyl chloride acetate resin.

We fail to find any significant difference between the degree of stretchability or non-stretchability as claimed or disclosed and that of Marshall. That appellant's coating is stretchable to a degree is manifest by the description in appellant's original specification. The coating is described as being resilient, flexible, pliable, and bendable. It is also described as constraining the core from being stretched beyond its elastic limit. This implies that it will permit the core to be stretched within its elastic limit. We interpret the description of appellant's coating as a coating having a small degree of stretchability. This is also true in Marshall. For example, when Marshall's plastic would be used for clothes lines it is obvious that it would be undesirable if it had a high degree of stretchability.

68 It is our opinion that whatever significance could be attributed to appellant's coating as being "substantially non-stretchable," such a meaning could also be reasonably given to the characteristics of Marshall's coating.

In further rejecting claim 13 as being drawn to new matter the Examiner stated that the original papers contained no suggestion that a dimensional relationship, as claimed, was critical and nothing to direct attention to such relationship or its significance.

Plaintiff's Exhibit 1.

Appellant urges that the dimensional relationship could be ascertained from the drawings. Appellant cites as authority for his contentions the syllabus of *In re Olson*, 41 CCPA 871, 685 OG 700, 212 F(2d) 590, 101 USPQ 401, 1954 CD 167. The portion from the syllabus quoted by appellant follows:

“ ‘Although 35 U. S. C. 132 provides that no amendment to application shall introduce new matter into disclosure of invention, it is proper, in support of claims which otherwise could not be allowed, to amend specification to include new matter clearly and conclusively disclosed by drawings.’ ”

We do not consider that *In re Olson*, *supra*, supports appellant's position. The decision states that:

“ ‘Ordinarily drawings which accompany an application for a patent are merely illustrative of the principles embodied in the alleged invention claimed therein and do not define the precise proportions of elements relied upon to endow the claims with patentability.’ ”

The court further stated:

“ ‘It is well known that Patent Office drawings are not normally drawn to scale, with the dimensions and sizes of parts shown to exact measurements as are shop drawings.’ ”

We do not regard appellant's drawings as supporting his position and we will affirm the Examiner's rejection of claim 13 as drawn to new matter.

69 For the reasons stated above, as well as the reasons stated by the Examiner, we hold that claims

Plaintiff's Exhibit 1.

12 and 13 do not define a patentable improvement over the prior art, and we are also of the opinion that claim 13 is drawn to new matter.

The decision of the Examiner is affirmed.

AFFIRMED

P. T. DRACOPOULOS)	
Examiner-in-Chief)	
H. B. FREEHOF)	BOARD
Examiner-in-Chief)	OF
	APPEALS
D. D. ANDREWS)	
Examiner-in-Chief)	
(Acting))	

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J. H. Slough
602 B. F. Keith Building
Cleveland 15, Ohio

70 U. S. DEPARTMENT OF COMMERCE
PATENT OFFICE
Washington

Re: Application of John O. Crouse; Serial No. 639,275;
Filed Feb. 11, 1957; For: Flexible Tubing

NOTICE OF CIVIL ACTION UNDER 35 U. S. C. 145

Under a civil action No. 949-62, under 35 U. S. C. 145, entitled John O. Crouse v. David L. Ladd, Commissioner of Patents, involving this application, was filed in the United States District Court for the District of Columbia, on March 22, 1962.

C. W. MOORE
Solicitor

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 Ass. Examiner *Sullivan* Cl.
 Division No.

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Applicant(s)

CROUSE

SEARCHED

Class	Sub	Date	Ex'r
138	57 58	10/2/57	886
74	501		
138	56 57 58 501	8/14/58	886
138	58	Brought up to date	
74	501		
138	8		
501	N		
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check for new matter met criteria 2/26/59			
74	501 P	4/5/62	pus
74	501		
138	121 122 123 124 125 126 127 133		
74	Plyer Digest		
64	2, 4		

INDEX OF CLAIMS

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SYMBOLS STATUS
 / Rejected
 - Allowed
 - (Through numeral) Cancelled
 * Restriction requirement
 M Nonselected invention or species
 I Interference
 A Appeal

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Plaintiff's Exhibit 1.

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CONTENTS

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Not up for Action.
Do not hold abandoned.

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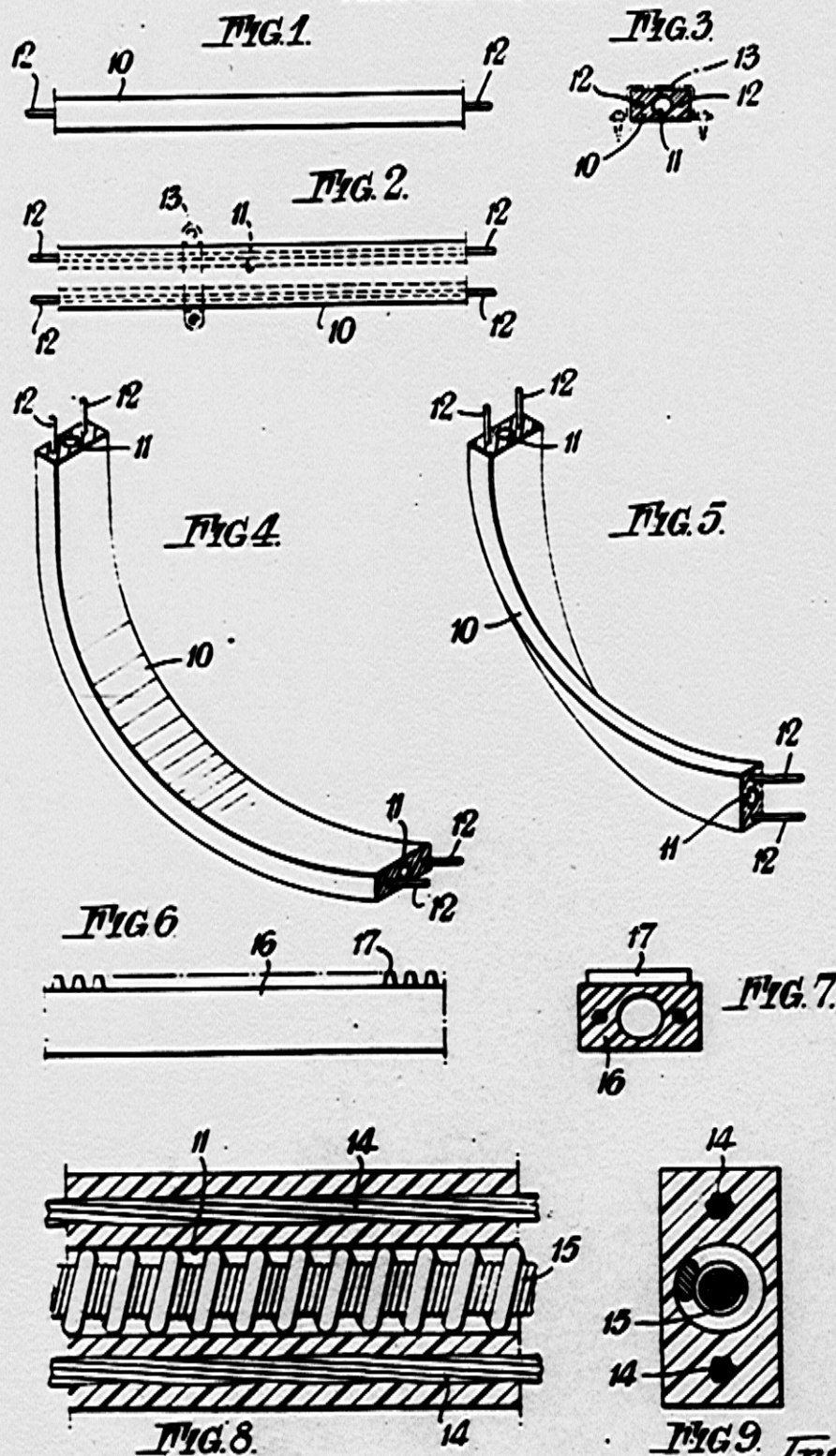
Dec. 18, 1956

J. S. BENTLEY

2,774,382

GUIDING CONDUIT

Filed June 12, 1953



Inventor
James Sydney Bentley
By Olson & Nielsen attys.

1

2,774,382

GUIDING CONDUIT

James Sydney Bentley, London, England, assignor to Teleflex Incorporated, Wilmington, Del., a company of Delaware

Application June 12, 1953, Serial No. 361,377

5 Claims. (Cl. 138—56)

The present invention relates to novel guiding conduits especially useful for control cables of the push-pull type or rotary type, and also useful for certain flexible rotary drive shafts.

Guiding conduits of the above described type have generally been made from metallic materials and have been relatively complicated and expensive to manufacture and to install. It is, therefore, a primary object of the present invention to provide novel guiding conduits which are relatively easily manufactured and installed and which are relatively inexpensive.

Another object of the present invention is to provide a simple and novel guiding conduit of the above described general type which, while being relatively inexpensive, has operating characteristics comparing favorably with the more complex and expensive conduits heretofore known in the prior art.

Still another object of the present invention is to provide a novel conduit of the above described general type which may be designed to be held in a fixed position or to have movement along a cable disposed therein.

In accordance with the present invention, such a guiding conduit is formed from a plastic material (which can be flexed and bent) by extrusion or moulding and has incorporated longitudinally of its length at least one wire, thread, cord or the like arranged parallel to the axis of the bore of the conduit, to keep its length constant and to resist extension thereof.

Such conduit, whatever its cross section, with its integrated reinforcement and flexible or bendable characteristics, can be laid in any desired path, that is, it can be bent to pass round corners with a radius of bend (above a minimum radius) and can even in such circumstances, for example when of rectangular section, change its plane of laying without impairing the sliding movements of the cable therein.

Preferably, each interior reinforcing wire, thread or the like (which may be a multiple wire or thread) has on its exterior serrations, undulations or otherwise so that the moulded or extruded plastic definitely bonds therewith to enhance the integration of the whole.

In some cases, the conduit may be designed to have movement over the interior cable and for this purpose can have teeth moulded by extrusion or otherwise on its exterior, or otherwise formed or attached thereto, so that it can be engaged by control means for the purpose concerned.

Again, owing to the nature of its material and method of manufacture, the conduit can have attached thereto during its manufacture or subsequent thereto, various fittings either for its attachment in position or for the co-operation of other parts therewith.

In order that the invention may be better understood, it will now be described with reference to the accompanying somewhat diagrammatic drawings which are given by way of example only and in which:

Fig. 1 shows in side elevation, Fig. 2 in plan and Fig.

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3 in end view, a portion of a conduit made according to one method of carrying the invention into effect.

Fig. 4 shows a perspective view of a portion of the guiding conduit such as shown in Figs. 1 to 3, to illustrate how it can be bent.

Fig. 5 shows a similar view to Fig. 4 but showing in addition how such conduit can be both bent and twisted.

Fig. 6 shows in side elevation and Fig. 7 in end view and to a larger scale, a conduit similar to that shown in the preceding figures but with an addition thereto.

Fig. 8 shows in sectional plan and Fig. 9 in end view and to a still larger scale, a portion of a conduit such as shown in Figs. 1 to 5 with a flexible multi-stranded push and pull control cable of the kind known by the registered trademark "Teleflex" mounted to slide therein.

In Figs. 1 to 5 of the drawings, the conduit 10 of extruded or moulded plastic material is of rectangular section and has symmetrically disposed therein the bore 11 for the passage of the flexible metallic cable. During manufacture the conduit has integrated therewith inextensible reinforcing wires 12 which come in the material of the conduit in symmetrical positions on each side of the bore 11. That is to say, as shown, there is a wire between the bore and each narrow edge of the conduit.

It will be understood that with the flexing and bending characteristics the conduit as shown can be laid in any desired path which can include bends. Such an ordinary bend is shown in Fig. 4 and it will be realised that such bending, from a minimum radius upwards, although of course it imposes some additional friction on the movable cable, does not prevent the sliding action of the cable.

As, in laying a conduit as illustrated in Figs. 1, 2 and 3, it may be necessary to change its plane of laying, Fig. 5 shows how this may be done by a twist at the bend.

Any suitable means may be provided for holding the laid conduit in position, which obviously will vary according to the precise application. It may, for example, be held in position by a series of suitably disposed straps or clips such as 13 shown in Figs. 2 and 3.

The reinforcing wires such as 12 may be single wires and these if desired can have matt surfaces or they can be otherwise roughened or serrated so that they more readily bond themselves with the material of the conduit. In most cases, however, each wire is formed as a multiple wire so that the exterior helical grooves form such bonding means. Such a construction is shown in Figs. 8 and 9 where flexible and inextensible multiple wires 14 are moulded in position in the conduit.

In these figures also, a "Teleflex" cable 15 operating by both push and pull is shown mounted for sliding action in the bore 11.

In some cases, the conduit may be included in a structure of the type where the conduit or a part thereof can slide on the cable. For this purpose, it can have integral teeth, such a construction being shown in Figs. 6 and 7 where 16 is the conduit and 17 the integral teeth moulded or otherwise formed therewith. With these teeth a suitable operating control engages so that upon the movement of the control the conduit or a portion thereof moves on the cable.

Although in the drawings the conduit is shown of rectangular section, it may be of other section; for example, of flattened oval section, or it can have one surface flat and another or others of convex form. Further, although two reinforcing wires have been shown, this arrangement may be varied according to exact circumstances. In some cases, there may be one reinforcing wire and in others more than two.

From the above description, it is seen that the present invention has provided a novel conduit which is of extremely simple construction and may be readily and eco-

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nominically manufactured. In addition, it is seen that by the provision of the substantially inextensible elements throughout the length of the conduit and substantially parallel to the bore therein, the plastic conduit has great resistance to stretching or collapsing and, therefore, has operating characteristics comparing favorably with the prior art metallic conduits.

While the preferred embodiments of the present invention have been shown and described herein, it is obvious that many changes may be made in structural details without departing from the scope and spirit of the appended claims.

The invention is claimed as follows:

1. A flexible guide conduit and support for an elongated flexible operating member to be housed therein and shifted relative thereto, and comprising an elongated body of flexible plastic material having a cross section presenting major and minor axes, said body having extending longitudinally therethrough a bore which is relatively small as compared to the cross section of the body along its major axis whereby to leave a substantial amount of material along the major axis of the body outside of the bore to add stiffness to the body for supporting the flexible operating member within the said bore, and an elongated reinforcing element embedded in the plastic body and extending longitudinally and substantially from end to end thereof and disposed between the bore and a narrow edge of the body for resisting stretching or collapsing of the body, the material of the body along the major axis thereof being resistant to bending therealong but facilitating bending of the body along the minor axis thereof and twisting of the body along its longitudinal axis to enable the conduit to negotiate curved installations.

2. A flexible guide conduit and support as claimed in claim 1, wherein the reinforcing element is provided with

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an irregular surface to provide positive interengagement between plastic material of the body and the reinforcing element.

3. A flexible guide conduit and support as claimed in claim 1, wherein a plurality of reinforcing elements are provided with at least one such reinforcing element disposed on opposite sides of the bore substantially along the major axis of the body.

4. A flexible guide conduit and support as claimed in claim 1, wherein the plastic body is of substantially rectangular cross section with the bore being substantially circular and positioned centrally thereof, and wherein there are a pair of reinforcing elements one disposed on each side of the bore and within the narrow edge of the rectangular body.

5. A flexible guide conduit and support as claimed in claim 1, wherein the body includes a plurality of outwardly projecting teeth integral therewith and spaced longitudinally therealong for cooperation with a toothed actuating member.

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Frank H. Stough

OCT 23 1953

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April 24, 1951

H. S. MARSHALL
CORDING

2,550,576

Filed Dec. 9, 1946

Fig. 1.

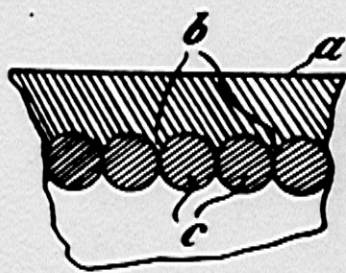
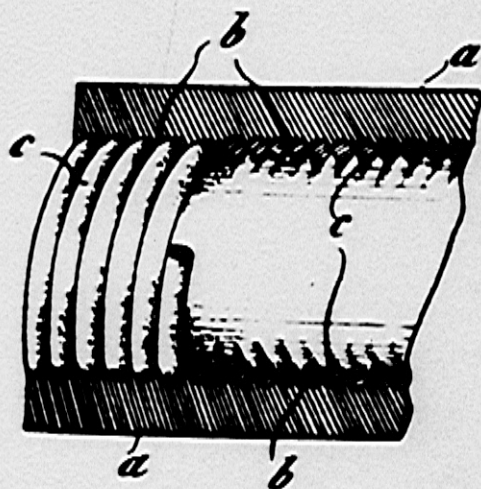


Fig. 2.

Herbert Stanley Marshall
By *Maier, Myers & Manley*
Attys

UNITED STATES PATENT OFFICE

2,550,576

CORDING

Herbert Stanley Marshall, Purley, England

Application December 9, 1946, Serial No. 715,007
In Great Britain January 19, 1946

3 Claims. (Cl. 138-56)

1

This invention relates to flexible cording or rod material for clothes lines, cables, bracelets, suspending curtains and for like purposes.

One object of the present invention is to produce such a flexible rod material having an attractive appearance, while the material of which the article, or at least the outer cover of the article, is composed is impervious to heat at normal temperature to moisture and colour fast.

Yet another object of the invention is to provide an article of the kind described which by reason of its inherent resilience is capable of recovering its shape after accidental or intentional deformation.

With the above mentioned objects in view the invention provides an extensive inherently resilient coiled spring metal core with a plastic covering, the plastic covering forming a sleeve closely supported by and adhering to the core and penetrating into the helical spaces between adjacent turns of the coil forming the core, so that the inner surface of the covering is helically recessed and extends and contracts with the coil.

The flexible plastic sleeving may, for example, be formed from an elastomeric compound which comprises a vinyl chloride acetate resin compounded with a plasticiser to provide flexibility. Such material can be produced in a complete commercial colour range and lends itself well to the invention.

The accompanying drawings illustrate the invention.

Fig. 1 is a sectional elevation on a greatly enlarged scale of one form of core covered with a sleeve; and Fig. 2 is a detail thereof on a still larger scale.

The sleeve *a* has a helical or serrated inner wall *b* which penetrates into the helical interstices or recesses between turns of the closely helically coiled metal wire *c*, the convolutions of which are normally in substantially tangential contact.

Preferably the sleeve *a* is applied to the resilient core *c* of helically coiled metal wire by feeding the latter through a die (not shown) through which the core *c* passes with a uniform clearance all round it, the plastic material being flowed under pressure into the space around the core *c* provided by said clearance.

As the core *c* is fed through the die the plastic forms the sleeve *a* closely surrounding and adhering to the core *c* and penetrating into the helical space *b* between adjacent turns of the coil, so that the inner surface of the covering *a* is helically formed and expands and contracts with the coil *c*. The sleeve *a* having a core *c* within may be wound up on to a receiving drum or otherwise suitably packed or stored. Thus one covering is arranged in such manner as to allow this covering or sleeve *a* to extend or move with

2

the inner core *c* so that the inner core when extended remains fully covered, throughout its length, by the outer sleeve or covering. At the same time the outer covering or sleeve retains its substantially smooth and even surface. By this method of covering, a special end detachment for holding the surface cover and the inner core together is not necessary.

The device of the invention may, if desired, be used for attaching soft furnishings in rooms.

Also, it may be used as a clothes line, to facilitate hanging clothes, and one or more dependent cords may be attached to the line at its ends or intermediately so that the cord can be grasped by the hand and the line pulled down to a convenient height for the purpose indicated. On release of the said cord the line will return to its normal position.

What I claim and desire to secure by Letters Patent is:

1. Flexible rod material comprising an extensible resilient core and a covering of elastomeric material thereover, said core being formed of spring wire wound into helical form with the adjacent convolutions normally in substantially side-by-side contact, said wire being of a cross-section to provide an exterior helical groove when so wound and the elastomeric covering being supported by and adherent to the core by engaging into the outer circumferential helical groove provided between the adjacent contacting convolutions of the core.

2. Flexible rod material according to claim 1 wherein the elastomeric material is the only covering for the core and is constrained to extend in unison with the extension of the core and to thereafter contract therewith.

3. Flexible rod material according to claim 1 wherein the elastomeric material is the only covering for the core and has a substantially cylindrical outer surface and an inner surface formed with helical ridges which are complementary to the outer circumferential helical groove provided between the adjacent convolutions of the core.

HERBERT STANLEY MARSHALL.

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2,392,842	Smith	Jan. 15, 1946

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Number	Country	Date
443,812	Great Britain	Mar. 6, 1934

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Aug. 6, 1940.

R. SCHMID ET AL

2,210,733

TOOL OPERATING DEVICE AND FLEXIBLE CABLE THEREFOR

Filed April 14, 1937

Fig. 2.

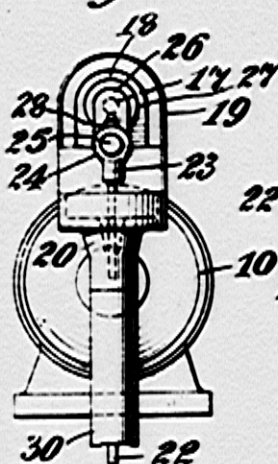


Fig. 1.

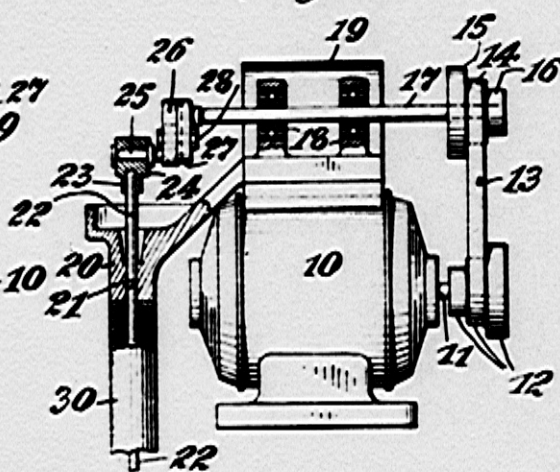


Fig. 3.



Fig. 4.

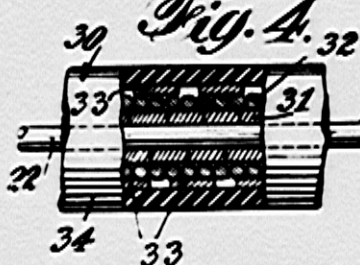


Fig. 5.

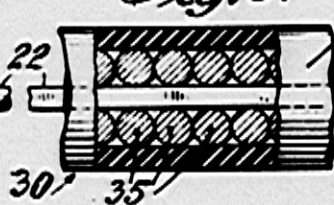


Fig. 6.

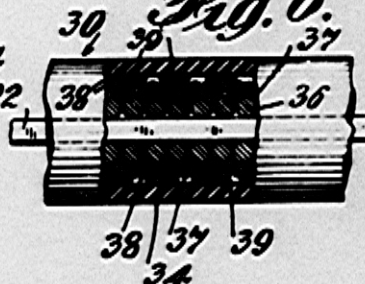


Fig. 7.

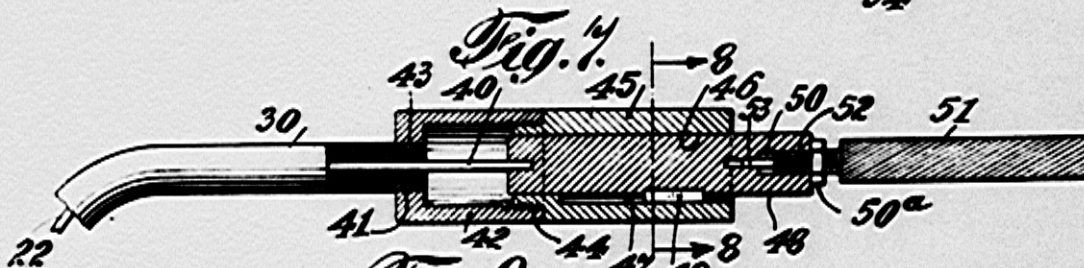


Fig. 9.

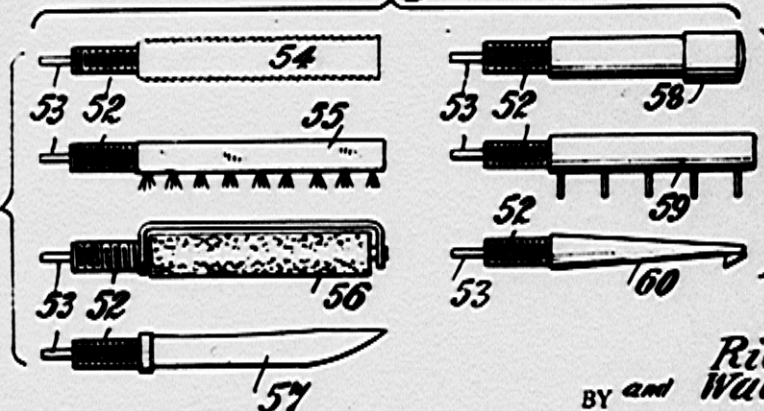
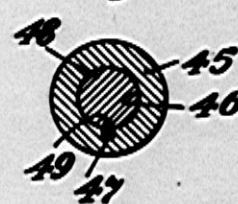


Fig. 8.



INVENTORS
 Richard Schmid
 Walter Wezel
 BY and
 C. P. Guepel
 ATTORNEY.

UNITED STATES PATENT OFFICE

2,210,733

TOOL OPERATING DEVICE AND FLEXIBLE
CABLE THEREFOR

Richard Schmid and Walter Wesel, Maulbronn,
Germany, assignors to Schmid & Wesel, Inc.,
Long Island City, N. Y., a corporation

Application April 14, 1937, Serial No. 136,836

4 Claims. (Cl. 74-501)

This invention relates to tool operating devices and flexible cables therefor, and has for its object to provide an improved means whereby in flexible cables the interior operating member, instead of being rotated, is subjected to a reciprocating action. Such action permits the use of tools such as files, saws or the like, which in their use require a to and fro movement instead of a rotary movement.

The object of the invention is further to provide an improved flexible cable.

The object of the invention, finally, is to produce a tool head, a part of which is operated by the reciprocating member of the flexible cable, and which in turn operates the specific tool intended to be used. For this purpose, the invention consists in providing means for reciprocating an interior member of a flexible cable, whereby the interior member is subjected to a reciprocating movement throughout the length of the flexible cable.

Our invention consists further in improvements in the making of a flexible cable so as to give it sufficient strength and resisting powers to enable the interior member to properly reciprocate throughout the length of the cable.

Finally, our invention consists of a tool head which has a stationary casing and a movable member connected in turn with a reciprocating interior member and connected also with the specific tool to be used. Such replaceable tools may be a file, a saw, a brush or similar device, such as are used in the arts and subjected to a to and fro movement.

The invention will be more fully described hereinafter, embodiments thereof will be shown in the drawing, and the invention will be finally pointed out in the claims.

In the accompanying drawing:

Figure 1 shows a side view partly in section of a motor and transmission means arranged to subject the interior member to the flexible cable, which may be a wire or the like, to a to and fro movement;

Figure 2 is a front view of the device shown in Figure 1, showing the eccentric action of the parts which bring about the to and fro movement of the interior member of the cable;

Figure 3 shows cross sections of various forms of the interior member, and at the same time such cross sectional contours used for the surrounding wires forming a metallic casing in which the interior member moves to and fro;

Figure 4 is a side view broken away to show a

section of one form of the interior of the flexible cable;

Figure 5 is a similar side view broken away to show a section of another form of flexible cable;

Figure 6 is a similar side view broken away to show still another form of the interior of the flexible cable;

Figure 7 shows a section of the tool head showing its connection with the flexible cable to one end thereof, and showing its connection with a tool on the other end thereof;

Figure 8 is a transverse section taken on line 8-8 of Figure 7; and

Figure 9 shows side views, diametrically, of various forms of tools which are used in the arts.

Similar characters of reference indicate corresponding parts throughout the various views.

Referring to Figures 1 and 2, the motor 10 of known construction has a shaft 11 with pulleys 12 thereon, and over the medium sized pulley a belt 13 passes which in turn passes over the medium sized pulley 14 between the pulleys 15 and 16, which are secured to a shaft 17 extending horizontally through bears 18 of an upward extension plate 19 of the motor 10. These parts are well-known.

The frame of the motor has a downwardly depending member 20 having an interior bore 21 through which passes an interior member or wire 22. The upper end of this wire 22 is secured to a ring 23 having a suitable bearing 24, and the central part of this bearing is a stud shaft 25. This stud shaft 25 is part of or may be secured to an upwardly extending arm 26 suitably secured to a downwardly extending arm 27, the arms 26 and 27 being secured together by a detachable bolt 28. The arm 27 extends downwardly as shown in Figure 1 in the position there shown from the shaft 17. The arrangement of parts just described and as shown also in Figure 2, is that there is an eccentric action between the arms 26 and 27 in that as the arm 27 is rotated by the shaft 17, the ring 23, and in consequence the wire 22, are given an up and down movement. The eccentricity is adjustable as seen from the drawing, and thereby the amplitude of the to and fro movement of the interior member may be varied. This is an important consideration because in the past, attempts to use to and fro moving tools failed due to the lack of means to give such tools the necessary to and fro movement. For instance, if the to and fro movement was too great in amplitude the tools would not work properly, and if too little the

tools were ineffective. Various tools require different amplitudes of to and fro movement and this adjustment of the eccentricity provides a means for varying the extent of the to and fro movement. The wire 22 extends from out of the bore 21 downwardly into a cable 30 and along the entire length of this flexible cable 30. The wire 22 may have any suitable contour, for instance, circular, square, rectangular, hexagonal or triangular, as shown in Figure 3. The flexible cable itself is of improved construction, and various embodiments of the same are shown in Figures 4, 5 and 6.

In Figure 4, the interior member or wire 22, which as stated may be of any suitable contour, is arranged centrally and is surrounded by a sleeve 31 which in turn is surrounded by a helically wound wire 32 extending the entire length of the cable, and this helically wound surrounding wire 32 is again surrounded by a flattened wire or of a rectangular shape indicated by 33 also helically wound the length of the cable. The wire 32 may either be so arranged as to have its coils contiguous to each other or slightly spaced from each other. The flattened wire 33 has its coils preferably spaced from each other. Around these wires a case of suitable water-proofing material or the like and having a suitable flexibility, and indicated by 34, is provided. This may be rubber or the like with or without a canvas inlay, or a canvas covering.

The cable described permits the interior member or wire 22 to move to and fro therein, and at the same time affords sufficient flexibility to permit the uses to which a flexible cable is put, and mainly it provides a sufficient rigidity longitudinally of the cable which acts in substance as a rigid casing so as to insure the to and fro movement of the interior member 22.

In Figure 5 another embodiment of the invention of the flexible cable is shown. Here again the interior member or wire 22 may be of any suitable contour, and this is surrounded by a circular wire helically wound around the same indicated by 35 and having a larger diameter than the wire 32 in Figure 4. The coils of the wire 35 may be either contiguous to each other or slightly spaced from each other. The coils of the wire 35 may be either round in cross section or given any other shape shown in Figure 3. Similarly, the coils 32 in Figure 4 may have any of the shapes of Figure 3. The winding 35 in turn is surrounded by a rubber casing 34 with or without canvas. In Figure 6 the preferred form of cable is shown. Here, the cable 30 has the interior wire 22 of any suitable contour. It is surrounded by a helical wire sleeve 36 now having a diameter somewhat similar to the wire sleeve 35 of Figure 5, and this sleeve 36 is surrounded by a sleeve of triangular shaped wire 37, a cross section of the wire being as shown in the triangular wire of Figure 3. The apexes of this triangular wire are directed toward the center of the cable and enter the bites of the coils of the wire 36. This sleeve of triangular wire is surrounded by a sleeve of circular wire 38, and this in turn by another sleeve of flattened or rectangularly shaped wire 39. The coils of the wire 36 may be either contiguous or slightly spaced from each other, and similarly with the wire 37 as also the wires 38 and 39. In each of the embodiments Figures 4, 5 and 6, the particular shape shown may be substituted by any suitable cross section of wire such as shown in Figure 3. Finally, this sleeve of wire is sur-

rounded by the lower layer or casing 34 with or without canvas.

From the description of the embodiments shown in Figures 4, 5 and 6, it is seen that a longitudinally rigid yet a flexible cable is provided which has a suitable guiding means for the to and fro movement of the interior wire 22. At the free end of this flexible cable the wire 22 protrudes from the cable as shown by the part 40 in Figure 7. The end of the cable 30 is secured to one end of a tool head, this end having a bore 41 of a casing 42 into which the free end 43 of the cable 30 is suitably secured. This casing member 42 has an interior screw thread 44 to which the other part of the casing 45 having a corresponding screw thread, is secured. This part 45 of the casing is provided with an interior bore 46 extending the length thereof, and this bore 46 has an additional recess 47. Within the bore 46 is a cylindrical member 48 having a fin 49 adapted to be engaged in the recess 47 of the bore 46. Instead of using a cylindrical member 48, a square shape or other cross section may be used for the member 48 and cooperating with a similarly shaped bore, in which case, of course, the fin 49 and recess 47 may be dispensed with. The member 48 extends outside of the casing 45 and is provided with a recess interiorly screw threaded, as shown by 53, said recess having a suitable contour to adapt itself to the holding ends of tools. For instance, in the tools shown in Figure 9, each tool 51 has a screw threaded sub-calibre stem 52 and a sub-calibre extension 53, and the recess having the screw threads 50 would be adapted to the known uses and configurations of the holding parts of the tools as used.

In Figure 7 the tool 51 there shown is an ordinary file which for its operation in the commercial arts requires a to and fro movement held in position by a lock nut 50a.

In Figure 9 the first embodiment shows a special form of file 54, a metallic brush 55, a polishing roller 56, a knife 57, a smoother 58, a corrugator 59, and finally the hook shaped tool 60 which enables grooves to be made in work pieces under a to and fro movement. These forms of tools are well known and one can be replaced by the other depending upon the particular job to be carried out.

From the foregoing it will be seen that the improvement consists in subjecting the interior member of a flexible cable to a to and fro movement instead of to a rotary movement, and that an improved casing for such to and fro moving interior member has been provided which gives sufficient flexibility and still such rigidity as to permit the free movement of the to and fro moving member, parts of the flexible cable acting in the nature of anti-friction devices for the to and fro movement. And finally an improved tool head is provided which enables on the one hand the substitution of various forms of tools, and on the other hand it is readily connected with the flexible cable so as to subject such tools to a to and fro movement.

A special feature of the movable parts is that the interior member, with very little play, is journaled in the very strongly built casing of the hose or flexible cable, and is subjected to not alone tension and compression, but to pressure whereby the movements of the tools themselves are controlled and governed in a to and fro movement. The interior member is therefore not one that has only to draw in one direction.

The sleeves of the casing of the flexible cable have the necessary fixity against extension or shortening while the work is being carried out, as is seen from the character of the construction of the flexible cable. The sleeve wires are preferably of steel to resist the necessary strains and stresses. Finally, the rubber casing may be covered with iron or steel wire as a further protection against injury to the rubber, this final sleeve not being shown, as it is well-known. The rubber may be either vulcanized or not, as is well known.

The motor shown is one which is capable of being operated at different speeds, and this variation of speed of the motor, combined with the adjustable eccentric action upon the interior member through its stable hose or casing, gives to the free end of the interior member where it is connected with the tool holder, a straight to and fro movement, and, in consequence, gives the tool which may be fixed to a very simple tool holder, a straight to and fro movement. The various wire sleeves as described prevent the cable from being pressed together along its length.

We have shown various embodiments of our invention, but we do not wish to be limited thereto, as changes may be made therein without departing from the spirit of the invention as defined in the appended claims.

We claim:

1. In a tool operating device consisting of a flexible cable having an interior longitudinally rigid member but flexible transversely, and a ring at the end of said interior member, the combination therewith of a rotary shaft, means for operating the shaft, an eccentric connection between said rotary shaft and said ring-shaped member, whereby the interior member is subjected to a to and fro movement, and means for varying said eccentric connection for varying the amplitude of the to-and-fro movement.

2. A flexible cable having a longitudinally rigid

and transversely flexible interior member adapted for to and fro movement, a sleeve of round wire surrounding the same, a sleeve of triangular wire surrounding the first sleeve, the apexes of the triangular wire entering into the bite of the first circular wire sleeve, a third sleeve of circular wire, a fourth sleeve of rectangular shaped wire, and a fifth sleeve of rubber or the like, permitting a longitudinal to-and-fro movement of the interior member within said wire sleeves, whereby a flexible casing is provided having rigidity in the longitudinal direction and flexibility transversely thereof to permit to and fro movement of the interior member.

3. A flexible cable having a longitudinally rigid and transversely flexible interior member adapted for to-and-fro movement, a sleeve of rectangular shaped wire surrounding same, a sleeve of round wire surrounding the first sleeve, a third sleeve of rectangular wire, and a fourth sleeve of rubber or the like, permitting a longitudinal to-and-fro movement of the interior member within said wire sleeves, whereby a flexible casing is provided having rigidity in the longitudinal direction and flexibility transversely thereof to permit to-and-fro movement of the interior member.

4. A flexible cable having a longitudinally rigid and transversely flexible interior member adapted for to-and-fro movement, a sleeve of rectangular shaped wire surrounding same, a sleeve of round wire surrounding the first sleeve, a third sleeve of rectangular wire, said third sleeve having its coils spaced apart from each other, and a fourth sleeve of rubber or the like, permitting a longitudinal to-and-fro movement of the interior member within said wire sleeves, whereby a flexible casing is provided having rigidity in the longitudinal direction and flexibility transversely thereof to permit to-and-fro movement of the interior member.

RICHARD SCHMID.
WALTER WEZEL.

IN THE
United States Court of Appeals
FOR THE DISTRICT OF COLUMBIA CIRCUIT

No. 18,270

JOHN O. CROUSE,

Appellant,

VS.

COMMISSIONER OF PATENTS,

Appellee.

APPEAL FROM THE JUDGMENT OF THE UNITED STATES
DISTRICT COURT FOR THE DISTRICT OF COLUMBIA

BRIEF FOR APPELLANT

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United States Court of Appeals
for the District of Columbia Circuit

FILED JAN 23 1964

Nathan J. Paulson
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II.

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IN THE
United States Court of Appeals
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No. 18,270

JOHN O. CROUSE,

Appellant,

vs.

COMMISSIONER OF PATENTS,

Appellee.

APPEAL FROM THE JUDGMENT OF THE UNITED STATES
DISTRICT COURT FOR THE DISTRICT OF COLUMBIA

BRIEF FOR APPELLANT

Statement of Questions Presented

(1) Whether claims 12 and 13 of appellant's application define invention over the prior art of record (taken either alone or in combination) *viz:* Schmid *et al.*, No. 210,733 dated August 6, 1940 for "Tool Operating Device and Flexible Tubing Therefor"; Marshall, No. 2,550,576 dated April 24, 1951, for "Cording"; and Bentley, No. 2,774,382 dated December 18, 1956, for "Guiding Conduit", where the introductory clause of the claims which states the purpose—"for a Bowdin control wire"—combined with the inclusion in the claim recitation following the introductory clause of "a slideway on which a said control wire may be

longitudinally adjusted" so affects the enumerated other elements as to give life and meaning to them, as they appear in the combination and provides a product not found in the prior art;

(2) Whether definite limitations in the said claims, (*viz*: "a substantially thick walled coating of a plastic material"; "having physical properties generally corresponding to those possessed, to a substantial degree, by a vinyl having a durometer hardness rating of D-75"; "said coating being substantially non-stretchable and preventing longitudinal stretching of said helix"; and "the diameter of the helix wire be not substantially less than that dimension which is one-half of the diameter of the recited slideway") can be ignored or construed out of the claims in order to apply the cited prior art which does not disclose the same.

Jurisdictional Statement

This is an appeal (from the judgment of the United States District Court for the District of Columbia) brought, pursuant to 28 U. S. C., Sections 1291 and 1294, by plaintiff-appellant John O. Crouse, a citizen of the United States of America, resident of the City of Mansfield, State of Ohio, against David L. Ladd, Commissioner of Patents, who is officially a resident of the District of Columbia.

The plaintiff-appellant is seeking a decree entitling him to receive United States Letters Patent for "Flexible Tubing" shown and described in his application for United States Letters Patent, Serial No. 639,275 filed on February 11, 1957, containing claims 12 and 13, the only claims present in the application.

After examination in the Patent Office, the said claims 12 and 13 were finally rejected on April 6, 1960 (plaintiff-appellant's Exhibit #1, Joint Appendix p. 82) no claims,

either original or added by amendment having been allowed.

On October 3, 1960, the applicant-appellant John O. Crouse, filed an appeal to the Board of Appeals (Exhibit 1, Joint Appendix p. 84).

Thereafter, by opinion dated January 29, 1962, the Board of Appeals affirmed the Examiner's rejection (Exhibit #1, Joint Appendix p. 102) and plaintiff-appellant then brought a Civil Action under 35 U. S. C. A., Section 145, against the Commissioner of Patents (Exhibit 1, Joint Appendix p. 107) in the U. S. District Court for the District of Columbia.

Trial was held in the United States District Court for the District of Columbia May 20, 1963 before the Honorable Joseph R. Jackson, Senior Judge (Exhibit #1, Joint Appendix p. 6).

On September 10, 1963, Judge Jackson rendered a Memorandum Opinion finding for the defendant-appellee and concluding that plaintiff-appellant was not entitled to a patent containing either of claims 12 or 13; the Opinion was stated to constitute Findings of Fact and Conclusions of Law (Joint Appendix, p. 28).

The order of the District Court entering judgment for defendant-appellee was filed on September 10, 1963 (Joint Appendix, p. 32).

On November 8, 1963, Notice of Appeal to the United States Court of Appeals for the District of Columbia Circuit from the judgment of the United States District Court for the District of Columbia was filed in accordance with Federal Rules of Civil Procedure, Rule 73.

Statement of Case

On February 11, 1957, the plaintiff-appellant in this appeal filed an application for United States Letters Patent, Serial No. 639,275, in the United States Patent Office. The application contained specification, drawings and claims relating to Improvements in Flexible Tubing, and was in due form as required by law. A certified file wrapper, Plaintiff-Appellant's Exhibit 1, was introduced at the trial. The only claims presently in this appeal are claims 12 and 13, which are as follows:

"Claim 12. A laterally flexible, and substantially non-extensible tubular housing for a Bowdin control wire, comprising a spring wire helix whose successive convolutions are resiliently maintained in lateral, contiguous, spring pressed engagement with each other, the interior of said helix providing a slide-way on which a said control wire may be longitudinally adjusted and a substantially thick-walled coating of a plastic material being applied over all outwardly presented surfaces of said helix, being solidified *in situ*, and having physical properties generally corresponding to those possessed, to a substantial degree, by a vinyl having a durometer hardness rating of D-75, said coating being closely fitted within the exteriorly presented recesses between all pairs of successive helix convolutions, to longitudinally interlock said helix and coating, said coating being substantially non-stretchable, and preventing longitudinal stretching of said helix.

Claim 13. The laterally flexible and substantially non-extensible tubular housing for a Bowdin control wire, substantially as set forth in claim 12, and being further characterized by the limitation that the diameter of the helix wire be not substantially less than that dimension which is one-half of the diameter of the recited slide-way."

These claims were finally rejected by the Examiner in the Patent Office and in Office Action dated April 6, 1960

(Joint Appendix, p. 82) on the ground that they were unpatentable under United States Letters Patent No. 2,210,733 dated August 6, 1940 to Schmid *et al.* in view of United States Letters Patent No. 2,550,576 dated April 24, 1951 to Marshall; and United States Letters Patent No. 2,774,382 dated December 18, 1956 to Bentley and on the ground that the claims define new matter. With respect to these grounds of rejection, the Examiner stated them to be the same as that of claim 11, which were as follows:

"Claim 11 is rejected as being unpatentable over Schmid *et al.* in view of Marshall of record and Bentley. It would produce no new, unobvious, or unforeseen result to apply the sleeve 34 of Fig. 5 of Schmid *et al.* in the manner illustrated by Marshall. The application of the sleeve may be by the process of either extrusion or molding as taught by Bentley. Since claim 11 is directed to the finished produced the manner of applying the sleeve is not a material or patentable limitation. The steps involved in the manufacture are significant only in claims directed to the method of making the article. The choice of a known material of known properties for the sleeve involves only mechanical skill.

Claim 11 is further rejected as defining new matter. There is no competent disclosure in the *original* papers to support the dimensional limitations recited at the end of the claim. The matter of new matter must be determined with reference to the original disclosure. 35 U. S. C. 132, Rule 118 of the Rules of Practice, Sections 608.04-608.04(b) M. P. E. P. 2nd Ed.

Applicant's original specification is silent as to such dimensions and applicant is required to cancel all amendatory matter (page 5, line 21, for example) introducing such disclosure because it is new matter. *Ex parte* Cherry, 25 U. S. P. Q. 48.

Applicant's drawings are not deemed competent as a disclosure for the specific dimensions recited by claim 11 for the reasons indicated in *ex parte* Sheldon,

89 U. S. P. Q. 441, and *In Re Olson*, 101 U. S. P. Q. 401.

No amendment, whether or not supported by affidavit, can remedy the failure to incorporate the matter in question in the original disclosure, whether the omission was inadvertent or otherwise. *Dow v. Converse*, 106 O. G. 2291, 1903 C. D. 404."

The Examiner on appeal before the Board of Appeals changed his grounds of rejection to make claim 12 finally rejected as being unpatentable under Marshall on the basis that Marshall was deemed to be a virtually complete anticipation of the claimed structure.

With respect to claim 13, the Examiner contended that it was unpatentable for the same reasons as those set forth for claim 12, it being observed by the Examiner that the specific proportions or dimensional relations set forth by claim 13 are not deemed to constitute patentable limitations in the instant environment and are furthermore shown by Schmid in Figure 5.

Claim 13 was further rejected as being drawn to new matter on the basis that nothing in the original papers gave any suggestion of the dimensional relations as critical and nothing to direct attention to dimensional relationship or their significance. The Examiner further contended that the fact that the drawings were drawn to scale and therefore disclosed the relationship was immaterial for which he relied on *In Re Olson*, 212 F. 2d 590, which was relied upon by the Board of Appeals in affirming the Examiner's decision (Joint Appendix, p. 97), Plaintiff-Appellant's Exhibit 1).

The Lower District Court found that Marshall was a complete anticipation of the structure defined in claim 12.

The District Court found with respect to claim 13 that "the dimensional relationship added by claim 13 fails in patentability because said dimensional relationship is not critical".

A Supplemental Oath of applicant was filed in the United States Patent Office in connection with application Serial No. 639,275 on March 2, 1959 (Plaintiff-Appellant's Exhibit 1, Joint Appendix, p. 64), during the prosecution of said application, in which the plaintiff-appellant stated that the "relative dimensions of the convolution wire and helix were a part of his original invention and were invented and reduced to commercial practice prior to the filing of his * * * application"; "that he does not know and does not believe that the same was ever known or used before his invention thereof; or patented or described in any printed publication in any country before his invention thereof," etc.

Statement of Points

1. The Court erred in holding that claims 12 and 13 of plaintiff's application for United States Letters Patent, Serial No. 639,275 filed February 11, 1957 and entitled "Flexible Tubing" are unpatentable in view of the following references:

Schmid <i>et al.</i>	No. 2,210,733
Entitled:	"Tool Operating Device and Flexible Cable Therefor"
Dated:	August 6, 1940
Marshall	No. 2,550,576
Entitled:	"Cording"
Dated:	April 24, 1951
Bentley	No. 2,774,382
Entitled:	"Guiding Conduit"
Dated:	December 18, 1956

2. The Court erred in holding that claims 12 and 13 of plaintiff's application, Serial No. 639,275, merely called for a tubular guide *per se*, and that the Bowden wire is not claimed in combination with the tubular guide.

3. The Court erred in finding that the differences in the hardness of the plastic coating and the size of the core wire are merely matters of degree and nothing critical is present.

4. The Court erred in finding that the specification and claims do not suggest criticalness for a D-75 hardness.

5. The Court erred in finding that the United States Letters Patent No. 2,550,576 to Marshall, dated April 24, 1951, is a complete anticipation of the structure defined by claim 12 of application, Serial No. 639,275, and that the dimensional relationship added by claim 13 of said application fails in patentability because said dimensional relationship is not critical.

6. The Court erred in holding that the Board of Appeals' interpretation of plaintiff's plastic covering as having a small degree of stretchability to be correct.

7. The Court erred in holding that it would be obvious to one skilled in the art to extrude a plastic coating on the helical wire core of Schmid *et al.* (U. S. Patent No. 2,210,733 dated August 6, 1940) in lieu of Marshall's teaching (U. S. Patent No. 2,550,576 dated April 24, 1951) if such were desired.

8. The Court erred in finding for the Defendant and in concluding that plaintiff is not entitled to a patent containing either of claims 12 or 13 of plaintiff's application, Serial No. 639,275.

Summary of Argument

The claims on appeal in the present action have been rejected by the District Court as completely anticipated by a prior art reference, *viz.*, U. S. Letters Patent No. 2,550,576 to Marshall on the basis that the claimed combination only includes a plastic coating interlocked on a wire helix forming a tubular guide *per se*. Plaintiff-appellant maintains that Marshall is a non-analogous prior art device; that the claims on appeal define an invention relating to an improved Bowdin control housing which is formed of a particular type of non-stretchable plastic material interlocked with a helix in such manner as to prevent the helix from longitudinal stretching, the interior of the helix forming a slideway in which a Bowdin wire is at all times, even during installation bend, free to longitudinally move, the helix being prevented from collapse at all times.

Plaintiff-appellant maintains that the preamble or introductory clause must be given effect to impart meaning to the combination; that the Bowdin wire is further recited as an element of the combination; all recited matter of the claims is critical and sufficiency disclosed in the specification and drawings; that limitations as to the material of the coating, the type of interlock with the helix, the dimensions recited cannot be ignored or construed out of the claims.

Plaintiff-appellant maintains U. S. Letters Patent No. 2,210,733 to Schmid and U. S. Letters Patent No. 2,774,382 to Bentley do not, either alone or in combination with Marshall, anticipate the claimed invention which appears novel, highly useful and has had marked commercial success, and solved a great problem in the industry.

ARGUMENT

I. Meaning should be given to the introductory clause of the claims which state the purpose together with the incorporation of the wire in the slide-way of the combination to give meaning to the claim.

A. Marshall cannot be relied on as a complete anticipation of the claimed structure.

Claims 12 and 13 contain an introductory clause or preamble reading as follows:

"A laterally flexible and substantially non-extensible tubular housing for a Bowdin control wire * * * " which precedes the recitation of the combined elements, viz. "a spring wire helix", "the interior of said helix providing a slideway on which a control wire may be longitudinally adjusted", and a "substantially thick-walled coating of a plastic material"—.

The Examiner, the Board of Appeals and the District Court for the District of Columbia have held that the claims define a tubular guide *per se* and have held that the Bowdin wire is not claimed in combination with the tubular guide and for this reason U. S. Letters Patent to Marshall No. 2,550,576, which is not a housing for a Bowdin controller, operates as a complete anticipation.

It is plaintiff-appellant's contention that a case on all fours with the present facts is *Stradar vs. Watson*, 100 App. D. C. 289, 244 F. 2d 737 (D. C. Cir. 1957). In this case the Court stated that even "though the introductory clause may of itself entirely fail to supply the necessary elements in combination, yet it may so affect the enumerated elements as to give life and meaning to them as they appear in combination".

The case of *Schram Glass Mfg. Co. v. Homer Brooke Glass Co.*, 7 Cir. 1918, 249 F. 228, 232-233, certiorari denied 247 U. S. 520, 38 S. Ct. 582, 62 L. Ed. 1246, was referred to by the Court in the Stradar case, *supra*, and the following quote was excerpted therefrom:

"Such a clause of itself may entirely fail to supply a necessary element in a combination * * * yet it may so affect the enumerated elements as to give life and meaning and vitality to them, as they appear in the combination."

The Stradar decision further states:

"It is observed that each of the claims in the first group contains not only the preamble but also this concluding language: '* * * said treated surface material retaining substantially the original character of the finished surface.'"

The prior art referred to in the Stradar case, *viz.* a patent to Hickman, related to the incorporation of on either side, or in the substance of, motion picture film support a blue dye which will absorb light more or less uniformly throughout the entire visible spectrum with the exception of a region in the extreme blue. The blue-backed film is then treated with a layer of emulsion. Hickman was not concerned with limiting the depth of dye penetration. Unlike Hickman's film, Stradar's semi-rigid plastic plate was thick enough to be engraved and to be suitable for its subsequent intended use and was treated by a dye solution, the composition of which was critical. The Court stated:

"Such a product limited to the purpose prescribed in the preamble of each claim is a significant and unobvious result as to structure."

The preamble in each Stradar claim related to an "engraved plate for reproducing images by printing proc-

esses". The Court noted that it appeared that Hickman's solvent mixture would damage the engraving plate and impair its usefulness. Stradar prescribed a solvent mixture that would not disturb the characteristics of the engraved surface. The Court concluded with the following statement:

"We think the record shows that Hickman and Stradar, working in different fields, solved different problems by developing different structures designed for different uses. It follows that Hickman's processes and products, though earlier, did not anticipate Stradar's."

The Appellate Court then remanded the case for entry of a judgment authorizing the Commissioner of Patents to issue a patent embodying the fourteen claims which were formerly rejected.

It is also to be noted that in the *Schram Glass Mfg. Co. v. Homer Brooke Glass Co.* case referred to, the Court stated:

"* * * appellant asks us to ignore the first clause of the claim which is as follows:

'An automatic device for cutting or separating an unsupported freely flowing stream of molten material into unformed molten masses.'

Appellant contends that this is a mere statement of process, and has no place in a mechanical apparatus, and should be entirely disregarded when appearing in a claim of an apparatus patent. With this conclusion we cannot agree. While it is true that this clause of itself does not describe an element in the combination, it should not for that reason be ignored. Each of the elements of the combination should be read in the light of this clause and should be modified by it. Such a clause of itself may entirely fail to supply a necessary element in a combination (*American Envelope Co. v. A. W. P. Co.*, 152 U. S. 425, 14 Sup. Ct. 627, 38 L. Ed. 400) yet it may so affect the

enumerated elements as to give life and meaning and vitality to them, as they appear in the combination. So, in this case, the legitimate and fair construction of the claims, particularly in view of the specifications and drawings, requires us to read on each element of this claim the clause which appellant insists is a superfluity. In so doing we are not substituting an operation for an element, nor including as an element the particular article upon which the apparatus is to work. We are merely giving to the modifying clause the same effect that would be given to an adjective or adverb that limits, enlarges, or qualifies the word it modifies."

In the present case, the principal reference upon which the Commissioner of Patents and the District Court relies is U. S. Letters Patent No. 2,550,576 dated April 24, 1951 to Marshall. Marshall's invention relates to "CORDING". The purpose of the invention is set forth in the following language in the Marshall patent:

"This invention relates to flexible cording or rod material for clothes lines, cables, bracelets, suspending curtains and for like purposes.

One object of the present invention is to produce such a flexible rod material having an attractive appearance, while the material of which the article or at least the outer cover of the article, is composed is impervious to heat at normal temperature, to moisture and colour fast." (Marshall Patent, Col. 1, lines 1-9 incl., Joint Appendix, p. 119).

"With the above mentioned objects in view the invention provides an extensive inherently resilient coiled spring metal core with a plastic covering, the plastic covering forming a sleeve closely supported by and adhering to the core and penetrating into the helical spaces between adjacent turns of the coil forming the core, so that the inner surface of the covering is helically recessed and extends and contracts with the coil.

The flexible plastic sleeving may, for example, be formed from an elastomeric compound which com-

prises a vinyl chloride acetate resin compounded with a plasticiser to provide flexibility. Such material can be produced in a complete commercial color range and lends itself well to the invention." (Marshall Patent, Col. 1, lines 15-30 incl., Joint Appendix, p. 119).

It is to be noted that the inventor particularly describes his invention in his patent specification, Col. 1, lines 57-59 incl. and Col. 2, lines 1-18 inclusive, (Joint Appendix, pp. 119), as follows:

"Thus one covering is arranged in such manner as to allow this covering or sleeve a to extend or move with the inner core c so that the inner core when extended remains fully covered, throughout its length, by the outer sleeve or covering. At the same time the outer covering or sleeve retains its substantially smooth and even surface. By this method of covering, a special end detachment for holding the surface cover and the inner core together is not necessary.

The device of the invention may, if desired, be used for attaching soft furnishings in rooms.

Also, it may be used as a clothes line, to facilitate hanging clothes, and one or more dependent cords may be attached to the line at its ends or intermediately so that the cord can be grasped by the hand and the line pulled down to a convenient height for the purpose indicated. On release of the said cord the line will return to its normal position."

The purpose of Marshall's invention is to provide an attractive cover for a coiled wire, which coiled wire is adapted to be used for a clothes line, etc., which covering can stretch and contract with the wire so that the cord can be grasped by the hand and the line pulled down or pulled out to connect to a window, etc. to support curtains or the like; the cover being as flexible as the wire so that at all times the wire remains covered and neither the cover nor the wire being impeded by the inherent characteristics of the other.

Marshall's cording is not a guide nor a "non-extensible tubular housing for a Bowdin control wire" (see claims 12 and 13, reproduced herein at p. 4) and could not operate as such.

Plaintiff-appellant's problem is to provide a tubular guide or housing for a manual push-pull Bowdin control wire wherein the slideway or guideway in the housing would always be kept open so that there "was always a free passage of that inner core wire" (Tr. of Record, pp. 25, 26, Joint Appendix, pp. 12-14), and the housing could not be stretched. As the inventor stated: "It was all to non-stretchability, we didn't want that to stretch" (Tr. of Record, p. 26, Joint Appendix, p. 13). The inventor, plaintiff-appellant herein, further stated: "We are keeping it as hard as we possibly can and still have it resilient" (Tr. of Record, p. 27, Joint Appendix, p. 14).

The inventor, in referring to his push-pull manual control (Plaintiff-Appellant's Exhibit 3, Joint Appendix, p. 15) states that the same contains his invention (Tr. of Record, p. 29, Joint Appendix, p. 16).

In demonstrating the operation of his invention, the inventor stood on the end of the Bowdin wire which extended through the casing. The inventor weighed 145 lbs. and he manually exerted pressure on the opposite end of the Bowdin controller and the Bowdin controller dramatically moved his foot some distance. He stated in making the demonstration that the Court could observe that there was "no stretch, no bulge".

The inventor stated in answer to question by counsel (see Tr. of Record, p. 31, Joint Appendix, p. 17):

"Q. But this does not stretch, is that right?

A. No, and in degrees which you couldn't do with a control like that, with 180 degrees this still operates freely because this won't stretch."

The inventor pointed out during his testimony that the Bowdin control wire housing was constructed, as claimed, of plastic material of a hardness critical to its operation; the coating being applied over the spring wire helix and a Bowdin wire passed through the slideway; the material of the coating has "high initial tension" (Tr. of Record, p. 32, Joint Appendix, p. 18).

The inventor in comparing his invention to Marshall stated (Tr. of Record, pp. 34, 35, Joint Appendix, p. 20):

"* * * First, your Honor, we have been trying to do the antithesis of the Marshall Patent, which is complete stretchability. We want something that won't stretch. Now when this is molded on, like here, which is a piece of the cut plastic, it is threaded all the way through there, molded on. Now that is the center. It is nothing, that is the casing by itself or the control by itself, but when you put that on you get a tough piece of covering and you can see that deep thread indentation in this whereby it is actually molded way deep into this, which you cannot do with any other type of plastic. It is a high molecular density, non-stretchable."

The inventor, in discussing the Marshall Patent, further stated (Tr. of Record, pp. 36, 37, 38, Joint Appendix, pp. 21-22):

"First, without a question of doubt, he describes a single wire casing with some sort of a plastic on it. He uses the word 'vinyl' here but he definitely uses 'elastomeric' and 'plasticiser' which indicates to me that when he has a piece of casing he can make it of either size. This is an English Patent. When I was a young fellow they had the old curtain rods, and that is what he developed this for and for clothes lines and jewelry covers. And he mentions the colors. Now obviously you couldn't have something that didn't stretch for a purpose of hanging something up and holding a tension to hold a curtain on and covering the casing with a colored plastic. Now in order to move this he would have to have so much plasticiser in that vinyl that it would move exactly with, as he

talks about, move with and move in and out. It would have to move the same degree as this stretchable casing would move, otherwise, if it did not, it would slip away. His principle, as I see it, is he says it does not leave this and change length or anything of that sort. He probably slips a sleeve on it. You know, just slips a covering on it. He hopes by putting a thin cover on it—But I can say this—

Q. He hoped what?

A. Pardon.

Q. He hoped what by putting a thin cover?

A. He hoped by putting a thin covering on it that it would protect this by holding into the interstices, but he couldn't mold a thin vinyl or too thin a plastic with that stretchability. It would not move deep into there. It is a physical impossibility. It is always going to move on that, but it must stretch with it and go back with it.

Q. Would the helix wire in the Marshall Patent be modified in any way by its covering, or would the covering, be modified in any way by the wire?

A. It does not change the basic physical characteristics of the inner core wire. He doesn't want it to. He wants it to follow those. He wants it to stretch with those. He does not want to change the initial tension of compression and force that is inherent in the inner core wire."

It is to be noted that plaintiff-appellant not only has an introductory clause or preamble which must be utilized in construing the claims which gives them a meaning further and beyond the elements as they appear in combination in the claims; further the control wire and its longitudinal adjustment in the slideway is incorporated in the combination of elements in the claims following the preamble.

In the appendix to an opinion in *Kropa v. Robie*, 187 F. 2d 150, 157, 158, 38 C. C. P. A. 858 (C. C. P. A. 1951), the Court reviewed decisions in *ex parte* cases in which the preamble either expressly or by necessary implication was considered to be a limitation upon the subject matter defined by the claim. In so reviewing, the Court found:

"* * * the following were the principal reasons advanced for considering the introductory clause a limitation in the claim:

The applicant was the first to provide the article described in the introductory clause comprised of the elements recited in the remainder of the claim (Case B-24) the existence of which latter, while previously known was not obviously useful in the environment specified in the introductory clause, and which use solved a problem, the solution of which had been sought for years by the industry (Case B-25).

Where there inhered in the article specified in the introductory clause a problem whose solution transcended that before prior artisans, the nature of that problem characterizes the elements comprising the article, recited in the body of the claim following the introductory clause, and distinguishes the claim over the prior art (Case B-26).

The introductory clause constituted an essential element in the novelty of the device, and constitutes a limitation in the claim (Case B-27)."

All of the above facts are true in plaintiff-appellant's case.

B. The Court erred in stating that it would be obvious to one skilled in the art to extrude a plastic coating on the helical wire core of Schmid *et al.* in view of Marshall's teaching if such were desired.

U. S. Letters Patent to Schmid *et al.*, No. 2,210,733 dated August 6, 1940 discloses a frame of a motor having a downwardly extending member 20 having an interior bore 21 through which an interior member 22, adapted to have an up and down movement, passes. The diameter of the member 22 is approximately the same as that of the bore 21 through which it passes (Joint Appendix pp. 121-128). Figure 5 of the patent drawings discloses the wire 22 as of any suitable contour and discloses the same as helically

wound around the same, as shown at 35; the winding is in turn surrounded by a rubber casing 34 with or without canvas. (Joint Appendix, p. 121.)

The District Court in its Memorandum Opinion (Joint Appendix, pp. 30, 31) states in referring to Schmid:

"Schmid et al demonstrates a Bowden wire guide tube comprising a helical wire core and a rubber covering thereover. The rubber cover does not appear to be keyed to the core along its length. The turns of the core are contiguous and formed from thick wire, larger in diameter than the slideway for the Bowden wire.
* * *

It appears to the Court that it would be obvious to one skilled in the art to extrude a plastic coating on the helical wire core of Schmid et al in lieu [*sic*] of Marshall's teaching if such were desired."

The substitution of a plastic stretchable coating, as shown in Marshall, for the rubber casing shown in Schmid *et al.* would not provide a "non-extensible tubular housing for a Bowdin control wire", as claimed by plaintiff-appellant, having a "substantially thick-walled coating of a plastic material"—"having physical properties generally corresponding to those possessed to a substantial degree by a vinyl having a durometer hardness rating of D-75, said coating being substantially non-stretchable, and preventing longitudinal stretching of said helix" as stated (claims 12 and 13).

Marshall's sleeve is simply supported by the helix and is adapted to expand and contract with the coil "to allow this covering or sleeve a to extend or move with the inner core c so that the inner core when extended remains fully covered, throughout its length by the outer sleeve or covering." (see Marshall Patent specification, Joint Appendix pp. 117-120).

The inventor of the subject matter of the claims presently in issue in this case stated with respect to the Schmid *et al.* patent (Tr. of Record, p. 38, lines 6-15 incl., Joint Appendix, p. 22):

"A. Well, the only thing I see in Figure 5 here is another sort of elastic covering which is not molded in the interstices in any way at all. This is brought up because diameter-wise it certainly doesn't have anything to do with ours for the simple reason the diameter of the wire there is way in excess of the diameter of that—which is not a bad feature to have in a way, but it means nothing as far as our flexible casing is concerned.

Q. It does not accomplish your purpose?

A. I don't know what they use it for."

Furthermore, the diameter of the helix wire is not shown in either Marshall or Schmid *et al.* as "substantially less than that dimension which is one-half of the diameter of the recited slideway", as defined in claim 13.

C. U. S. Letters Patent No. 2,774,382 to Bentley dated December 18, 1956, does not anticipate plaintiff-appellant's claims contained in the application under consideration.

The Bentley patent is only referred to in the District Court's Memorandum Opinion in the following language:

"Bentley shows an extruded tubular plastic guide for a Bowden wire. At least one longitudinal reinforcement wire is embedded in the plastic guide to obviate stretching." (Joint Appendix, p. 30).

The wire referred to by the Court which is embedded in the plastic conduit of Bentley is simply a reinforcing wire and is recited as furnishing resistance to stretching or collapsing, and the conduit is not defined as preventing stretching or a helix. Bentley does not disclose a Bowden controller, but a conduit of molded plastic having a bore for the passage of flexible metallic cable. The inventor stated relative to this Bentley structure:

“* * * This is electrical wiring with a plastic covering on it.

Q. It is what?

A. This just shows a conduit wiring with a method of putting plastic coverings on the conduit wires.

Q. For what?

A. Electrical connections or something of that sort. This looks like it is a conduit for insertion of electrical wires. It is not for our purpose. What do they call it here, anyway? A ‘guiding conduit’. He says that it is a guiding conduit.

Q. Is it a solid material with wires embedded in it?

A. Yes, this is flat. This is a flat type. He has done that to take care of the tension of the pull. He is creating tension, apparently, by putting woven cable into his plastic.

Q. Would that affect the length of it in any way, or would it affect what?

A. By the drawing it would all depend on the size of the wires and the type, again, of the plastic that he uses.

Q. It is not disclosed?

A. It has no obvious commercial practical use. He speaks of cable all the time. That is not a wire. It is a woven cable and a strand that they use to pull through something of this sort, but it is a sleeve. It is just sort of a sleeve. It doesn’t go into any place that would hold or grip. It is just a covering.

Q. It would not modify the action of it?

A. No, not that I can see that is in the inherent structure or the method.”

II. The claims in issue contain definite limitations which cannot be ignored or construed out of the claims in order to apply the cited prior art which does not disclose the same.

The claims call for “substantially thick-walled coating of a plastic material”; “having physical properties generally corresponding to those possessed, to a substantial degree, by a vinyl having a durometer hardness rating of

D-75"; "said coating being substantially non-stretchable and preventing longitudinal stretching of said helix"; and "the diameter of the helix wire be not substantially less than that dimension which is one-half of the diameter of the recited slideway". These limitations cannot be ignored or construed out of the claims in order to apply the cited prior art which does not disclose the same.

The case of *In Re Bisley*, 197 F. 2d, 355, 359, 39 C. C. P. A. 982 (1952), is on all fours with the situation involved herein. In the Bisley decision, the Court ruled "definite limitations in a claim should not be ignored or construed without the claim". The Court stated that the claims under consideration there defined an angle of the pivot pin—

"* * * with respect to component elements of the mixer, albeit by geometrical language, in such a manner that the pin is structurally located, by the terms of these claims, at a substantial angle with respect to identified horizontal and vertical datum planes and within that range of angularity which will achieve appellant's desired novel result. Definite limitations in a claim should not be ignored or construed out of the claims."

In the present case, the Bowden wire is recited as longitudinally adjustable in an interior of a spring wire helix "whose successive convolutions are resiliently *maintained* in lateral, contiguous spring-pressed engagement with each other, and the helix has applied thereon "a substantially thick-walled coating of a plastic material" which is "solidified *in situ*" on said helix and possesses "physical properties generally corresponding to those possessed to a substantial degree by a vinyl having a durometer hardness rating of D-75, said coating being closely fitted within the exteriorly presented recesses between all pairs of successive helix convolutions, to longitudinally interlock said helix and coating, said coating being substantially non-

stretchable, and preventing longitudinal stretching of said helix" (claim 12), and such "non-extensible tubular housing" for the "Bowdin control wire" is characterized by the diameter of the helical wire being "not substantially less than that dimension which is one-half of the diameter of the recited slideway" (claim 13).

The object of plaintiff-appellant's invention is to provide a flexible housing for a Bowden control wire which has high initial tension, is relatively hard, is non-stretchable, resilient enough to take care of any practical installation bend but providing a non-stretchable casing where the movement of the control wire is unimpeded and where the interior of the housing cannot collapse, the coating modifying the action of the helix and the helix and casing acting as an integral resilient non-stretchable coating for the manual push-pull wire, and not stretching and contracting with the helix, as in Marshall.

For this Court's convenience a copy of the claims in the present application ^{follows, showing in italics the} ~~in which all italicized portions have~~ ^{which the lower Court} ~~been eliminated from the Court's consideration of the~~ invention:

"12. A laterally flexible, and substantially non-extensible tubular housing for a Bowdin control, comprising a spring wire helix whose successive convolutions are resiliently maintained in lateral, contiguous, spring pressed engagement with each other, *the interior of said helix providing a slideway on which a said control wire may be longitudinally adjusted* and a substantially thick-walled coating of a plastic material being applied over all outwardly presented surfaces of said helix, being solidified *in situ*, and *having physical properties generally corresponding to those possessed, to a substantial degree, by a vinyl having a durometer hardness rating of D-75*, said coating being closely fitted within the exteriorly presented recesses between all pairs of successive helix convolutions, to longitudinally

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interlock said helix and coating, *said coating being substantially non-stretchable, and preventing longitudinal stretching of said helix.*"

"13. *The laterally flexible and substantially non-extensible tubular housing for a Bowdin control wire, substantially as set forth in claim 12, and being further characterized by the limitation that the diameter of the helix wire be not substantially less than that dimension which is one-half of the diameter of the recited slideway.*"

The Court in its Memorandum Opinion (Joint Appendix, p. 31) stated:

"* * * the differences in the hardness of the plastic coating and the size of the core wire are merely matters of degree since nothing critical is present."

The differences to which the Court alluded were the differences of hardness of the plastic coating claimed over that of Marshall. The Court stated that:

"The specification and claims do not suggest criticalness for a D-75 hardness, and that suggestion is a fundamental requirement for ascribing patentable weight to specific values or ranges."

and referred to the case of *In Re Honnig*, 193 F. 2d 191; *In Re Shoemaker*, 83 F. 2d 288 in support of the same.

The District Court also stated that the "dimensional relationship added by claim 13 failed in patentability because said dimensional relationship is not critical". The Court stated that it concurred with the "Board of Appeals' interpretation of plaintiff's plastic covering as having a small degree of stretchability * * *".

The claims and the specification of plaintiff-appellant's application (Joint Appendix, pp. 39-48), in many places stresses the importance of providing a housing for a Bowdin controller which is not subject to stretching in operation and which has a lateral structural strength * * * "in excess of that which is found in other types of tubing which

are adaptable for similar purposes" * * * "which has inherently controlled bending characteristics which prevent pinching and kinking of the tubing in ordinary use" (Joint Appendix, p. 40, Plaintiff-Appellant's Exhibit #1, p. 2). The specification recites further (Joint Appendix, pp. 43-44, Plaintiff-Appellant's Exhibit #1, pp. 6, 7):

"When the core 21 is integrally united and interlocked with the coating 22, said core cannot be stretched beyond its elastic limit as it is constrained throughout its entire length by the multiplicity of ridge convolutions 26. * * * This plastic is resilient but its force of restitution is substantially less than that of the core 21, and its resilient qualities are not adversely affected by temperature, weather and the like.

It will be understood, therefore, that the flexible tubing 20 comprises two integrally and complementarily united elements, the core 21 and the coating 22, having different elastic qualities which, when combined and properly interlocked, provide a tubing, said tubing with the desirable flexing characteristics; and the circular convolution 23 provide great lateral resistance to pinching, kinking or collapsing of said tubing."

An affidavit by the plaintiff-appellant during the prosecution of this application (Joint Appendix, p. 64) states that those portions of the specification relating to the type of plastic and the relative dimensions of the convolution wire and helix are a part of his invention. The claims contain definite limitations for the reason that they are critical to the invention and it is only by eliminating all of the italicized material of the above claims, which robs the claims of the essence of the invention, that the references can be applied or combined as anticipatory.

Plaintiff-appellant is not attempting to substitute statements in an affidavit for the lack of such in the application as the District Court suggests in its reference to the cases of *In Re Shoemaker*, 83 F. 2d 288, 23 C. C. P. A. 1033 (1936) and *In Re Honnig*, 193 F. 2d 191, 39 C. C. P. A.

740 (1951). As indicated in the quotations excerpted above from applicant's specification and claims, a suitable basis has been laid for criticalness in the use of a casing material of distinctly different thickness and hardness, which is non-stretchable, and in the dimensions recited for the helix and slideway. Hence, the Court erred in excluding reference to all of the italicized matter in the lines, *supra*.

III. Plaintiff-appellant's claims disclose a patentable invention.

The commercial success of which evidence was given at the trial, it is agreed does not render an invention patentable if invention is lacking but where, as here, a new product is produced, which cannot be found in the prior art and which has important advantages, it is cogent testimony in support of invention.

None of the references, whether singly applied, as Marshall was used, or whether combined, as in other rejections, anticipates the plaintiff's invention nor teaches its teachings.

"Novelty is not negated by anything which was neither designed, nor apparently adapted, nor actually used, to perform the function of the thing covered by the patent, though it might have been made to perform that function by means not substantially different from that of the patented invention. (Walker on Patents, Duller's Ed., page 289)."

Recent cases to the above effect include *Georgia Pacific Corp. v. United States Plywood Corp.*, 258 F. 2d 124 (2nd Cir. 1959) cited with approval in *International Nickel Co. v. Ford Motor Co.*, 166 F. Supp. 551 (S. D. N. Y. 1958). In the Georgia-Pacific Case, *supra*, the Court said:

"* * * Defendant contends that the Deskey striated plywood is a useful, novel and inventive concept because it meets and goes far in solving the problems of

edge separation and checking in softwood panels in a manner not suggested by the prior art * * *

As indicated by the district judge, checking and edge separation are problems general to the wood industry and to plywood in particular.

* * * The Deskey patent attempts to meet the problems of edge separation and checking by striation.

* * * Considerable evidence demonstrates that the Deskey striation attacks an old and very real problem in the Douglas fir plywood industry.

* * * Testimony indicates that the seriousness of the problem has been increasing in recent years, since the exhaustion of the better grade logs has required the progressive use of poorer timber.

* * * That the Deskey striation was an effective solution cannot be denied.

* * * If then, the Deskey striation does have a very real utility, is it a novel and an inventive advance over the prior art? We think the question must be answered in the affirmative. Decorative striation is old in the art, but its use was previously confined primarily to singles and other solid lumber products where its efficacy in relieving stresses was minimal and even that minimal relief was generally unrecognized. Gilmer, No. 1,910,895, it is true, commented that a fluted shingle would 'be more resistant to rot and would not check or warp as readily due to the longitudinal flutings affording a greatly increased dispersion of the shrinking and expansion strains. * * *'. This offhand statement, however, taught no one that deep grooving of plywood was a solution to an industrial problem. 'It is unrealistic to reason that (the inventor) did nothing more than might be expected of the skilled mechanic, when neither the owners of such prior art patents nor any member of the public after their expiration discovered that their teachings were worth reducing to practice.' *Artmoore Co. v. Dayless Mfg. Co.*, 7 Cir., 1953, 208 F. 2d 1, 4, certiorari denied 347 U. S. 920, 74 S. Ct. 518, 98 L. Ed. 1075. See also *Ric-Wil Co. v. E. B. Kaiser Co.*, 7 Cir., 1950, 179

F. 2d 401, 404, certiorari denied 339 U. S. 958, 70 S. Ct. 981, 94 L. Ed. 1369.

* * * Here, however, we have concluded that the Deskey striation has a very real utility which arises primarily from the deep grooving, a utility which was insubstantially present in the prior art and at most, if at all, only dimly perceived. Benefits incidentally and accidentally accruing in the products of the prior art do not necessarily negate invention in a change in degree when the purpose is different and the results new and useful. *Eibel Process Co. v. Minnesota & Ontario Paper Co.*, 1923, 261 U. S. 45, 66, 43 S. Ct. 322, 67 L. Ed. 523."

See also *Worel et al. v. Ooms, Comm'r of Patents*, 72 F. Supp. 273 (D. C. 1947).

The Court's attention is further directed to the established principle that simplicity of an invention does not militate against validity. *Application of Sporck*, 301 F. 2d 686, 689 (C. C. P. A. 1962) where the Court stated:

"* * * Once appellant's solution to the problem of making a tapered wall frusto-cone is disclosed, it is easy to see how the prior references can be modified and manipulated to produce this type of cone. The change admittedly is simple and by hindsight seems obvious. However, the simplicity of new inventions is oftentimes the very thing that is not obvious before they are made. This court, in *In Re Osplack*, 195 F. 2d 921, 39 CCPA 932, stated:

'We think this case is one of that category of inventions which, when viewed after disclosure and explanation by an applicant, seems simple and such as should have been obvious to those in the field. Yet this does not necessarily negative invention or patentability. *Goodyear Tire & Rubber Co., Inc. [et al.] v. Ray-O-Vac Co.*, 321 U. S. 275, 64 S. Ct. 593, 88 L. Ed. 721; *In re DeLancey*, 159 F. 2d 737, 34 C. C. P. A. (Patents) 849. Indeed, simplicity may even be some evidence of invention. *Baldwin Southward Corporation v. Tinius Olsen Testing Mach. Co. [et al.]*, 3 Cir. 88 F. 2d 910.' "

The statement has been made above that Marshall and plaintiff have worked in non-analogous arts and for opposite ends. In this connection the Court's attention is directed to the decision of the Court of Customs and Patent Appeals in *Application of Ratti*, 270 F. 2d 810, 813 (1959) where the Court said:

"* * * Considering the incompressible nature of the rubber in the sealing element disclosed in *Chinnery et al.*, its stiffening and reinforcement by the cylindrical sheet metal member, and its 'interference press fit' in the bore, it seems clear to us that the *Chinnery et al.* seal cannot function in the manner of appellant's seal. Now, as to the contention that Jepson would suggest inserting a set of spring fingers, the resilient element of *Chinnery et al.* is forced so tightly into the bore and is so 'stiffened' that the use of the resilient spring fingers of Jepson could not possibly increase the resilient deformation of the *Chinnery et al.* seal in the direction of the bore or increase the sealing engagement of the seal with the bore. The teaching of the *Chinnery et al.* patent points away from the addition of any spring element. On the other hand, we find nothing in the disclosure of Jepson's coffee maker gasket to suggest that any part of it has applicability to shaft seals. The two arts are at least somewhat remote from each other even if they both involve sealing.

We therefore find that *Chinnery et al.* did not teach the shaft sealing art how to solve the problems which existed in that art at the time of appellant's invention.

* * * We hold, further, that the combination of Jepson with *Chinnery et al.* is not a proper ground for rejection of the claims here on appeal. This suggested combination of references would require a substantial reconstruction and redesign of the elements shown in *Chinnery et al.* as well as a change in the basic principles under which the *Chinnery et al.* construction was designed to operate.

* * * Once appellant had taught how this could be done, the redesign may, by hindsight, seem to be ob-

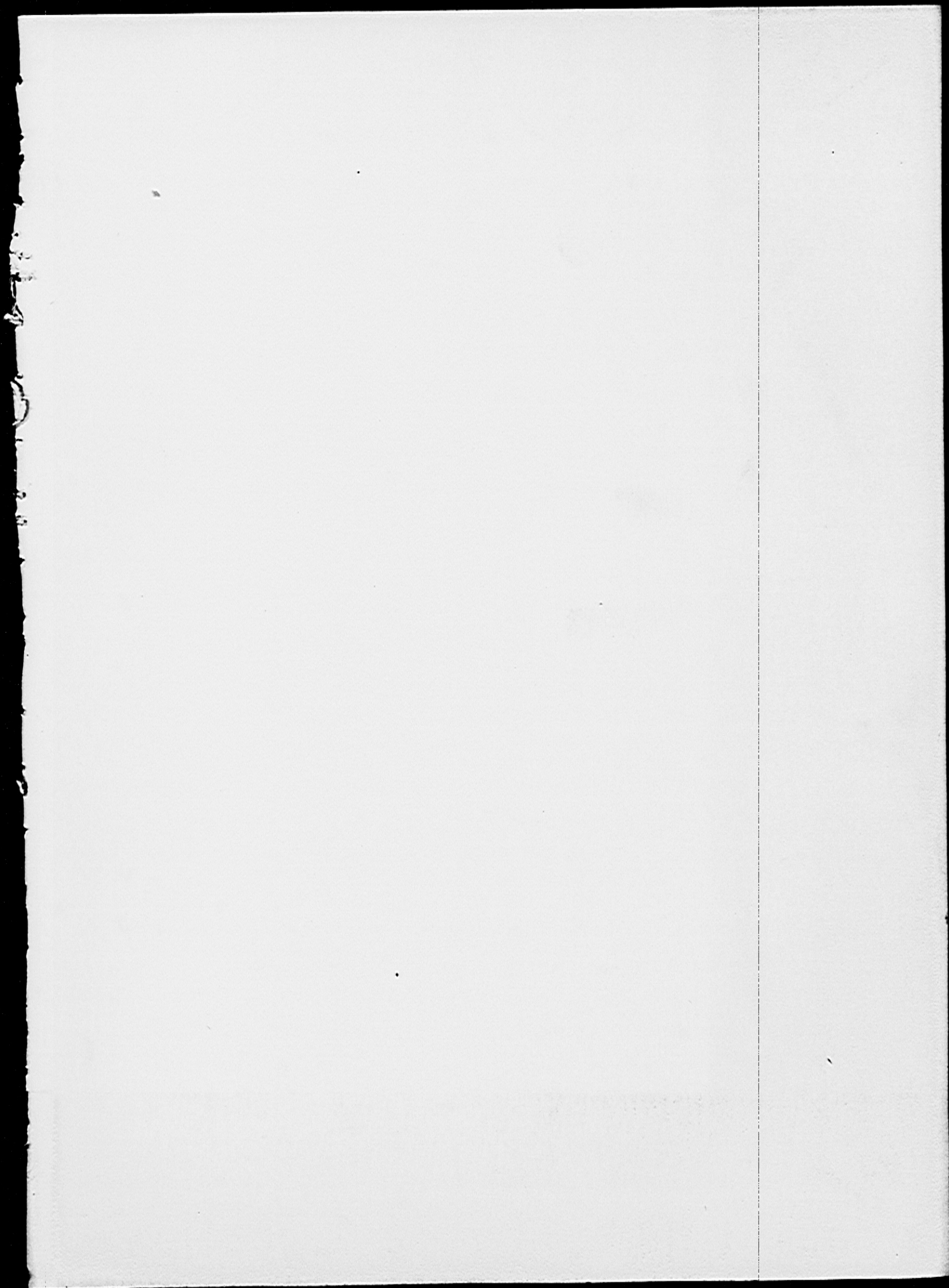
vicious to one having ordinary skills in the shaft sealing art. However, when viewed as of the time appellant's invention was made, and without the benefit of appellant's disclosure, we find nothing in the art of record which suggests appellant's novel oil seal as defined in claims 1, 4 and 7."

CONCLUSION

For the foregoing reasons, the District Court for the District of Columbia erred in not remanding the application in issue to the Commissioner of Patents with instructions to grant United States Letters Patent containing the claims in issue.

Respectfully submitted,

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IN THE
United States Court of Appeals
FOR THE DISTRICT OF COLUMBIA CIRCUIT

Appeal No. 18,270

JOHN O. CROUSE, APPELLANT

v.

COMMISSIONER OF PATENTS, APPELLEE

Appeal from the Judgment of the United States
District Court for the District of Columbia

BRIEF FOR THE COMMISSIONER OF PATENTS

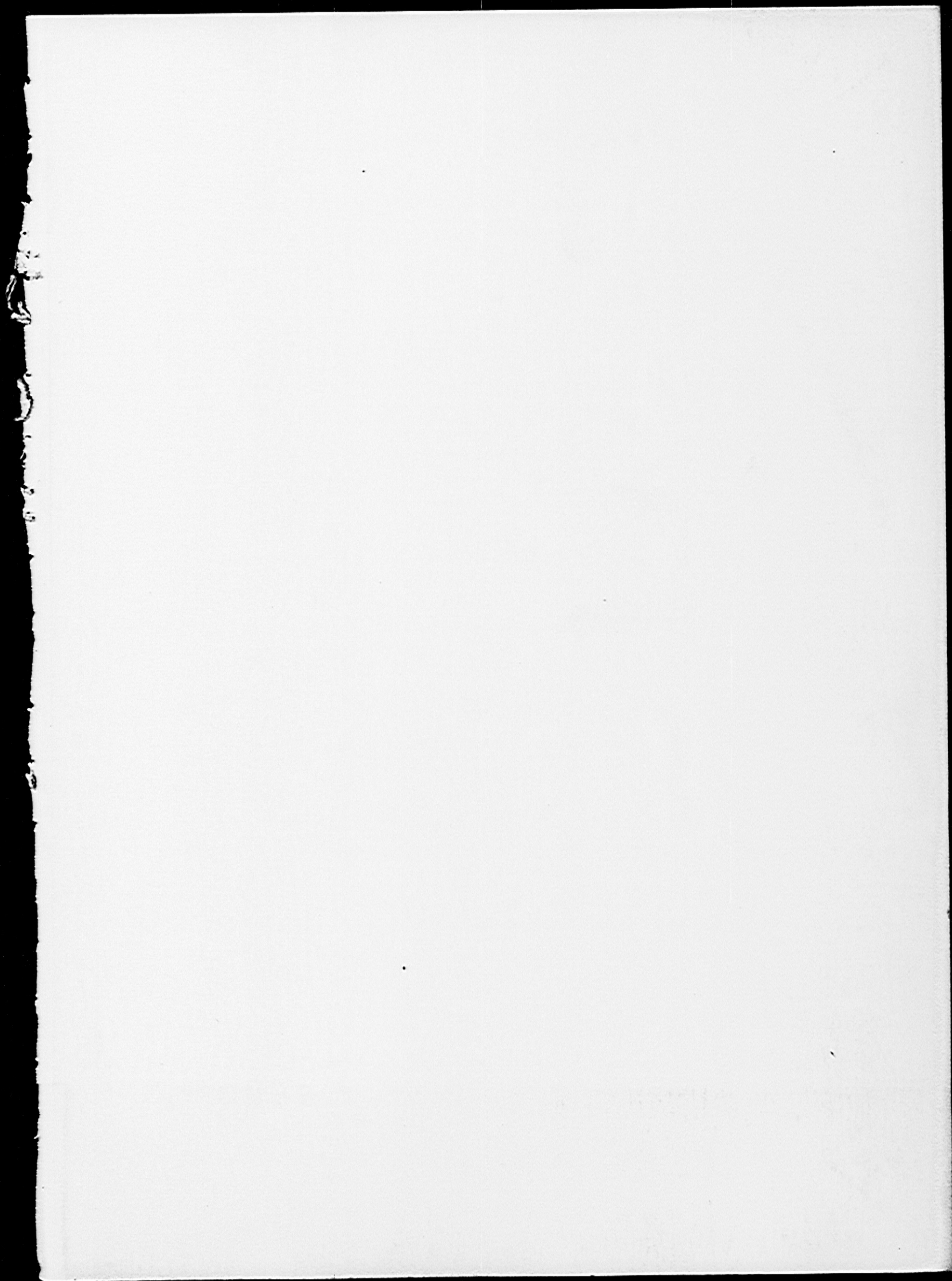
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United States Court of Appeals
for the District of Columbia Circuit

FILED FEB 14 1964

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STATEMENT OF QUESTIONS

In the opinion of the appellee, the questions presented on this appeal are:

1. Was there a rational basis for the finding of the District Court, on all the evidence before it, that claims 12 and 13 are anticipated by Patent No. 2,550,576 to Marshall in the sense of 35 U.S.C. 102(a) which provides that "A person shall be entitled to a patent unless—(a) the invention was * * * patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for patent," and

2. Was there a rational basis for the finding of the District Court, on all the evidence before it, that it would be obvious to one skilled in the art to extrude a plastic coating on the helical wire core of Schmid et al. in view of Marshall's teaching, in the sense of 35 U.S.C. 103 which provides that "A patent may not be obtained * * * if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains."



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IN THE
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Appeal No. 18,270

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v.

COMMISSIONER OF PATENTS, APPELLEE

Appeal from the Judgment of the United States
District Court for the District of Columbia

BRIEF FOR THE COMMISSIONER OF PATENTS

INTRODUCTION

This is an appeal (J.A. 32) from the order of the United States District Court for the District of Columbia (J.A. 32) dismissing a complaint (J.A. 1) against the Commissioner of Patents in an action brought under 35 U.S.C. 145. In that action, appellant sought a decree authorizing the Commissioner of Patents to grant a patent to him containing claims 12 and 13 (J.A. 78 and 79) of appellant's application Serial No.

639,275, filed February 11, 1957, and entitled "Flexible Tubing" (J.A. 36 *et seq.*). No claim has been allowed.

THE APPLICATION

Appellant's flexible tubing can be readily appreciated from the original drawing in the application (facing J.A. 48). There, in Figures 2-5, a composite flexible guide tube 20 is shown, consisting of a closely wound helical wire core 21 having a plastic coating 22 integrally molded thereon. "In the molding process, the plastic of the coating 20 is formed around the core 21 while said plastic is in a molten state, and the inner concave peripheral surface 24 of said coating forms helical interlocking ridges 26 between the coils 23 of said core" (J.A. 42, bottom). "The coating 22 may be manufactured of any suitable plastic material," but "a preferred plastic * * * is a vinyl having a Durometer reading of D-75 hardness" (J.A. 43, middle). "The core 21 is inherently resilient," but "when * * * united and interlocked with the coating 22, said core cannot be stretched beyond its elastic limit as it is constrained throughout its entire length by the multiplicity of ridges 26" (J.A. 43, first full paragraph). Hence, the coating 22 limits axial extension of the core 21, while coils 23 of the latter are said to "provide great lateral resistance to pinching, kinking, or collapsing of said tubing" (J.A. 44, top).

The coils 23 define a central passage or guideway for a "flexible control cable" 15, oftentimes called a

Bowden wire.¹ The combined assembly might be used to remotely control the throttle valve of an outboard motor e.g., as generally shown in Figure 1. There, the forward end of the Bowden wire 15 is connected to a lever 12 next to the helm while the after end is connected to a throttle lever 16 of outboard motor 11. The guide tubing 20 is clipped to the starboard gunwale 14 and would also have to be clamped at its after end to a fixed portion of the motor. The flexibility of the guide tubing accommodates the pivoting of the motor for steering of the boat. However, not all types of installation would require flexibility in the guide tube after installation.

Figure 6 represents a second flexible tubing construction, not embraced by claims 12 and 13. However, it tends to emphasize "that the flexible tubing * * * can be adapted to incorporate either open or closed helically wound cores, that the coils may be of any preferred cross-sectional form, and that the coating may be of any desired thickness" (J.A. 45, first full paragraph).

THE CLAIMS

Claim 12 (J.A. 78) calls for the composite tubular construction shown in Figures 2-5, by virtue of the coils or "convolutions" being "resiliently maintained

¹ Webster's Third New International Dictionary (unabridged), p. 262, "bowden cable or bowden wire * * * n, usu cap B [after E. M. Bowden, 19th cent. Eng. inventor]: spring steel wire enclosed in a spiral wire casing for transmitting longitudinal motion at a distance esp. (as in a hand brake) around curves"

in lateral, contiguous, spring pressed engagement with each other." The inclusion of the "Bowdin control wire" as a claimed element is still in question, appellant contending that it is (J.A. 34, point 2) whereas the examiner, Board of Appeals and Judge Jackson all agree that it is not. The "plastic material" constituting the coating 22 is described as "having physical properties generally corresponding to those possessed, to a substantial degree, by a vinyl having a durometer hardness rating of D-75."

Claim 13 (J.A. 79) includes all the claimed structure of claim 12, and limits the diameter of the helix wire as "not substantially less than that dimension which is one-half of the diameter of the recited slide-way."

PRIOR ART

Marshall (Patent No. 2,550,576; J.A. 117) is the most important reference, and shows "flexible cording or rod material for clothes lines, bracelets, suspending curtains and for like purposes." A resilient core consists of "closely helically coiled metal wire c, the convolutions of which are normally in substantially tangential contact." "An elastomeric compound which comprises a vinyl chloride acetate resin compounded with a plasticiser to provide flexibility" forms a sleeve a and "is applied to the resilient core c of helically coiled metal wire by feeding the latter through a die (not shown) through which the core c passes with a uniform clearance all around it, the plastic material being flowed under pressure into the space around the

core c provided by said clearance." The plastic penetrates "into the space b between adjacent turns of the coil, so that the inner surface of the covering a is helically formed and expands and contracts with the coil c." Hence, the covering a is keyed to the core c and experiences like strain under longitudinal tension; the two behave as one without relative slippage.

Schmid et al. (Patent No. 2,210,733; J.A. 121) show flexible cables for transmitting reciprocal drives to various tools (Fig. 9). In Figure 5, the flexible cable consists of a central reciprocal Bowden wire 22, a helical wrap of spring wire 35 thereabout (probably a double helix of two interspersed wires in view of the illustration), and a rubber sleeve 34 overall. The wire 35 is illustrated as being noticeably thicker than the diameter of the guideway for Bowden wire 22. The coils in wire 35 are shown in contact, the specification stating that they "may be either contiguous to each other or slightly spaced from each other." Figure 5 *inter alia* is said to provide "a longitudinally rigid yet a flexible cable" (J.A. 125, second column, lines 3-6), and "the sleeves of the casing of the flexible cable have the necessary fixity against extension or shortening while the work is being carried out" (J.A. 127, first column, lines 1-3). Hence, the need for insuring against undue stretching of the composite guide tube 34-35 for Bowden wire 22 was clearly recognized.

Bentley (Patent No. 2,774,382; J.A. 111) discloses and claims *per se* a guide conduit for a flexible control cable or Bowden wire. The conduit 10 is formed of

a plastic material "by extrusion or molding and has incorporated longitudinally of its length at least one wire * * * to keep its length constant and to resist extension thereof." The reinforcing wire "has on its exterior serrations, undulations or otherwise so that the moulded or extruded plastic definitely bonds therewith to enhance the integration of the whole."

COUNTERSTATEMENT OF THE CASE

Appellant's presentation of claims 12 and 13 (Appellant's Brief, p. 4) is correct, except for inconsequential discrepancies (viz. omission of a comma before "and" in line 8 of claim 12, italicizing "in situ" in line 10 of claim 12, and the inclusion of a hyphen in "slide-way" in the last line of claim 13).

Appellant's exposition of the examiner's grounds for rejecting claims 12 and 13 is basically correct. However, one should not infer from the examiner's answer (J.A. 91-97) that the examiner had any reservation concerning the merit of his final rejection (J.A. 82 and 83, incorporating the substance of a prior examiner's action at J.A. 75-77), in restating the rejection as being based on Marshall (J.A. 94). At such time, the examiner said that he considered the final rejection based on Schmid et al. "to be a good rejection that *should*, and would, be sustained" (J.A. 94, emphasis added). In concluding his answer (J.A. 97), he "submitted that all of the final rejections should be sustained."

The Patent Office Board of Appeals sustained the examiner *in toto* (J.A. 102-107), stating that "we are

in full agreement with the position taken by the Examiner" (J.A. 104). The Board found that "neither the specification nor the claims define with sufficient particularity a specific plastic material which can be distinguished from the plastic material disclosed by Marshal." The Board failed "to find any significant difference between the degree of stretchability or non-stretchability as claimed or disclosed and that of Marshal." Moreover, the Board interpreted "the description of appellant's coating as a coating having a small degree of stretchability," but noted that "this is also true in Marshall."

The District Court held for the defendant-appellee (memorandum opinion at J.A. 28-32). Judge Jackson's principal findings are reflected in appellant's Statement of Points (J.A. 33-35), particularly points 2-7. He also noted the rejection of claim 13 as being drawn to new matter (35 U.S.C. 132, last sentence), but stated that "since the Court finds that the references relied upon render the involved claims unpatentable, it is deemed unnecessary to discuss [this] rejection of claim 13" (paragraph bridging J.A. 29 and 30).

SUMMARY OF ARGUMENT

Claims 12 and 13 call for the "tubular housing" *per se*, and do not include the Bowden wire in combination therewith. At most, their references to a Bowden wire indicate intended use for the "tubular housing." However, the examiner found it obvious that Marshall's tube could be used to guide a Bowden wire, and

his uncontroverted finding is reasonable. Also, the Board's finding of comparability between the hardness for the claimed plastic covering and that of Marshall is reasonable. In any event, a D-75 hardness was neither disclosed nor even established as being critical, and the same is true also for the dimensional limitation posed by claim 13. Hence, any differences on those bases would be mere matters of degree, not deserving of patentable weight. Therefore, Marshall fairly anticipates the claimed structure, even if the indicated use be viewed as coloring same.

Alternatively, both the claimed structure and indicated use therefor would have been obvious to one skilled in the art, in view of the prior patents to Schmid et al., Marshall, and Bentley. Both the examiner and Judge Jackson so held, and the evidence does not show error therein.

ARGUMENT

- A. Claims 12 and 13 call for a composite tube *per se*, and do not include a Bowden wire as a claimed element.

The preamble of claim 12 (J.A. 78) indicates that the tubular housing is "for a Bowdin control wire," and later the spring wire helix forming part of said housing is indicated as having an "interior * * * providing a slide-way on which a said control wire may be longitudinally adjusted." The preamble of dependent claim 13 (J.A. 79) merely reiterates the functional indication that the housing is "for a Bowdin control wire." These are the only references to any control wire or Bowden wire in the claims, and *prima*

facie merely indicate the *use* to which the claimed tubular housing may be put viz, slidably enclosing a Bowden wire. The examiner clearly recognized this allusion to *use* as such (J.A. 96, fourth full paragraph). For contrast, one might look to cancelled claim 11 (J.A. 61), wherein "a Bowdin control cable" was actually claimed along with the tubular housing, as "projected longitudinally therethrough."

B. The different use depicted in claims 12 and 13 does not eliminate Marshall as an anticipatory reference here.

Appellant actually argues for something less than inclusion of the Bowden wire as a claimed element, viz. an interpretation of the indicated use as affecting the claimed flexible housing elements "as to give life and meaning to them as they appear in combination" (Br-10 to 18). He cites *Stradar v. Watson*, 100 App. D. C. 289, 244 F.2d 737 as being in point, in which case this Court referred approvingly to *Schram Glass Mfg. Co. v. Homer Brooke Glass Co.*, 7 Cir., 1918, 249 F. 228, 232-233, c.d. 247 U.S. 520, 38 S. Ct. 582, 62 L. Ed. 1246.

In the *Schram* case, the Court recognized the appellant's proposition that "if the prior art disclosed a device of like construction, capable of performing the same function as the [Brooke] patent in suit, even though the [prior art] inventor had no idea of making use of his apparatus for such a purpose, the patent is anticipated."² Thereupon, the Court deliberated and

² Proposition (a) at 249 F. 231, based on *Carnegie v. Cambria*, 185 U.S. 403, 22 Sup. Ct. 698, 46 L. Ed. 968 — pre-

found that the apparatus disclosed in a prior patent to Steimer could not handle a flowing stream of molten glass, functionally set forth in the preambles of the claims in the Brook patent which appellant contended were anticipated by Steimer.

In the *Stradar* case, this Court similarly took care to determine that the photographic films of the prior patents to Hickman were "too flimsy to be engraved" (footnote 1), a capability called for by the preambles of Stradar's claims. Also, the Court noted that Hickman was not concerned with the depth of die penetration for the films of either of his patents, whereas "the evidence shows that to Stradar it is of critical importance to hold the penetration to an infinitesimal maximum so the engraving tool will go through to the clear portion of the plastic beneath the color." Moreover, the proofs indicated to the Court that a solvent treating step in one Hickman patent, and a chemical change in and roughening of the film surface in the second Hickman patent, would be inimical to engraving such films in Stradar's manner. Such findings, it appears, were material to this Court's holding the District Court's finding of fact No. 4 clearly erroneous, i.e. the finding that "Aside from the reference in the preamble of each claim to an 'engraving plate for reproducing images by printing processes,' [the] claims * * * describe the tinted product disclosed by the Hickman patents and those claims are, therefore, effectively anticipated in a structural sense."

sumably, at 185 U.S. 424, "A mechanical patent is anticipated by a prior device of like construction and capable of performing the same function."

Clearly, there is no central obstruction in Marshall's composite tube (J.A. 117), such as might interfere with the passage of a Bowden wire therethrough. Also, the structural relationship between the helical spring wire core and the vinyl coating extruded thereover is precisely that set forth in claims 12 and 13. Moreover, a clothes line or curtain rod might well have an outside diameter comparable to appellant's tubular Bowden wire guide (e.g. plaintiff's exhibit 3). Hence, the examiner's finding that "Marshall's tubing is suited for such use," as a guide for a Bowden wire (J.A. 96, fourth full paragraph), would appear reasonable. Certainly, the *evidence* does not establish the contrary. Now of course, appellant contends that Marshall's tubing would be too stretchable, for practical use as a Bowden wire guide.

The examiner observed that appellant's tube "is *definitely stretchable* as seen in Figure 4" of his application drawing (J.A. 96, top; drawing facing J.A. 48), and appellant reluctantly admitted as much.³ Also, plaintiff's exhibit 3 (corresponding to the claimed casing with Bowden wire therein), may be bent more sharply than in Figure 4, suggesting a yet greater capacity for the covering to stretch than is apparent from that figure. Considering the lack of longitudinal slippage between the covering 22 and

³ (J.A. 26 and 27 — with regard to Figure 4 of the application drawing) Q. Now would you say, Mr. Crouse, that the vinyl covering is slightly stretched to permit the separation between adjacent steel convolutions of the coil 23? A. No, * * * There is some stretch there. You are getting a little stretch there but very little.

coils 23, it is apparent that noticeable overall stretching of the combined assembly is quite possible, inasmuch as a tensile force thereon could be expected to yield longitudinal distension in the covering 22 as shown in Fig. 4 *between each pair of adjacent coils 23*. The Board of Appeals noted that in appellant's specification the coating is described as being resilient, flexible, pliable, and bendable," and also "as constraining the core from being stretched beyond its elastic limit." (J.A. 105). The converse of the latter was noted, i.e. that the coating "will permit the core to be stretched within its elastic limit," and hence must have "a small degree of stretchability." The Board viewed Marshall's coating as having a comparable small degree of stretchability, particularly when used as a clothes line. When one considers the housewife's natural desire to keep a heavy wash well above muddy ground, and the high tension necessary in the clothes line to carry such load with minimal sag, the Board's view appears quite reasonable. Moreover, the Board considered "appellant's description of his plastic material as one having properties corresponding to a 'vinyl having a durometer hardness rating of D-75' * * * too indefinite since it does not define the composition of his plastic in a manner which can be distinguished from the plastic disclosed in Marshall." In short, reasonable basis appears for considering Marshall's coating to correspond to that claimed.

Assuming arguendo that there is a difference in hardness of the plastic, is a D-75 hardness critical or

merely a matter of choice, where appellant's use is concerned? The examiner deemed any difference here to be one of "degree only" (J.A. 96), and Judge Jackson concurred "since nothing critical is present" (J.A. 31).⁴ As correctly noted by Judge Jackson, with respect to the D-75 hardness for the coating as well as the dimensional limitation posed by claim 13, the original specification and claims do not indicate criticality therefor. The two decisions cited at this point in the opinion stand for the fundamental proposition that criticality must be disclosed in the application *as filed*, if patentable weight is to be accorded thereto. Recently, in deciding *In re Shepard* (1963) 50 CCPA, 319 F.2d 194, the Court of Customs and Patent Appeals reaffirmed its position taken in *In re Honing*, 39 CCPA 740, 193 F.2d 191, that statements in affidavits as to criticality cannot be substituted for proper disclosure in the application, and adhered to the view that "values which are described in an application only as being preferred cannot ordinarily be held to be critical." Now in appellant's specification (at J.A. 43), he disclosed that "The coating 22 may be manufactured of any suitable plastic material," and "A preferred plastic * * * is a vinyl having a Durometer reading of D-75 hardness." Moreover, the

⁴ For criticality of a point or range, the results or characteristics achieved at the point or within the range must be different in kind rather than in degree from those achieved at other points or outside the range.

In re Bourdon, 44 CCPA 740, 240 F.2d 358;

In re Selmi et al., 33 CCPA 1187, 156 F.2d 96;

In re Britton, 28 CCPA 726, 115 F.2d 249.

original claims (numbered 1-10 at J.A. 45-47) make no mention of any D-75 hardness for the coating. Hence, the application as filed cannot be viewed as pointing to D-75 hardness as critical. Inasmuch as there was really no disclosure of the dimensional threshold for core wire diameter posed in claim 13, it certainly was not disclosed as critical. Mr. Crouse's testimony failed to establish that either D-75 hardness or the claim 13 limitation were, in fact, critical. There was no testimony indicating that different hardnesses for the plastic covering had been tried, and that a D-75 hardness had proven superior to all others. Indeed, one might even conclude from Mr. Crouse's testimony that he had simply been satisfied with the plastic hardness initially selected for him by another (J.A. 12, 25).

In his specification, appellant said "the coating may be of any desired thickness" (J.A. 45). Now it is common knowledge that more force is necessary to stretch a thick strand than a thinner one of like material, the resistance to strain being proportional to cross sectional area. Hence, a thick plastic coating 22 might be expected to insure more resistance to tube stretching than a relatively thin coating, of the same material having the same hardness. How then could the hardness *alone* be critical? Appellant completely ignores thickness as a parameter in insuring "substantial non-stretchability."

In general, a mere change in degree or size is not inventive, *Guidet v. Brooklyn*, 105 U.S. 550, 552, 26 L. Ed. 1106 (1881), *Preston v. Manard*, 116 U.S. 661, 664, 29 L. Ed. 763, 764 (1885). Of course, a

change which yields surprisingly improved results may constitute an exception, or be considered critical, *Eibel Process Co. v. Minnesota & Ontario Paper Co.*, 261 U.S. 45, 67, 67 L. Ed. 523, 534 (1923), *Minerals Separation Case*, 242 U.S. 261, 269, 61 L. Ed. 286, 292 (1916). Here, appellant has neither disclosed nor established criticality for any differences his claims might represent over Marshall.

While the foregoing argument assumes that some consideration might be given to the use posed in the claims, such would hardly be necessary, *In re Thuau*, 30 CCPA 979, 135 F.2d 344; *Kropa v. Robie et al.*, 38 CCPA 858, 187 F.2d 150 (Appendix A. listing 23 cases in which preamble held not to express limitation in claim, as contrasted to Appendix B listing only 6 cases in which the preamble either expressly or by necessary implication was considered to be a limitation upon the subject matter defined by the claim). Marshall simply discloses the structure claimed here, or sufficiently so in the absence of the disclosure and establishment of criticality for any differences.

- C. The tubular housing recited in claims 12 and 13, as well as the use thereof for guiding a Bowden wire, would have been obvious to one of ordinary skill in the art.

The examiner considered claims 12 and 13 to be unpatentable over Schmid et al. in view of Marshall and Bentley (Final rejection at J.A. 82 and 83, incorporating such rejection of former claim 11 at J.A. 76). He held that "it would produce no new, unobvious, or unforeseen result to apply the sleeve 34 of

Fig. 5 of Schmid et al. in the manner illustrated by Marshall." While he looked to Bentley as indicating how such a sleeve might be molded or extruded onto the core of Schmid et al., such reliance was clearly unnecessary, since Marshall teaches extrusion molding of his sleeve *in situ* onto the core. At any rate, Bentley suggests the likelihood that one seeking to improve upon Schmid et al. would come across Marshall's teaching, by virtue of the common Patent Office classification of Bentley and Marshall (noted by examiner in paragraph bridging J.A. 93 and 94). One of the practical benefits of the patent system is that any person desiring to make improvements in a device, such as a Bowden wire guide tube e.g., can search the classified collection of patents at the Patent Office for ideas. Had appellant only done so when he was trying to improve upon waterproof coverings for helical Bowden wire guides (J.A. 12, top), he might well have been drawn to Bentley or similar prior patents (specifically concerned with a non-stretchable Bowden wire guide tube *per se*), and come across Marshall in the same subclass. In selecting a plastic for extrusion over the helical core of Schmid et al., as a substitute for rubber sleeve 34, a skilled worker might be expected to favor hardness. After all, Schmid et al. indicate that the guide tube or sleeve should "have the necessary fixity against extension or shortening while the work is being carried out" (J.A. 127, first column, lines 1-3). Also, Bentley teaches as much.

The dimensional limitation posed by claim 13 was found by the examiner to be "shown by Schmid et al.

in Figure 5" (J.A. 97, top). Clearly, a coil wire having a diameter greater than the slideway diameter would have one "not substantially less than that dimension which is one-half of the diameter of the recited slideway," for whatever significance that threshold thickness might conceivably have.

One may note that Mr. Crouse's testimony with respect to the three patents was on an individual basis only, and only briefly at that for Schmid et al. and Bentley (J.A. 22 and 23). In view of all the evidence, Judge Jackson would appear to have been justified in agreeing with the examiner "that it would be obvious to one skilled in the art to extrude a plastic coating on the helical wire core of Schmid et al. in [view] of Marshall's teaching if such were desired" (J.A. 31).

D. Mr. Crouse's testimony is of dubious probative value.

After testifying on direct examination that he "arbitrarily sent a couple of samples [run of the mill casing corresponding to plaintiff's uncoated Exhibit 2] to a manufacturer one day" and gave him *carte blanche* to extrude any suitably hard plastic he could thereon (J.A. 12), Mr. Crouse later indicated on cross examination (at J.A. 24) that he had done all the work himself, including the selection of the plastic. Hence, his testimony was contradictory on a possibly material question—i.e. the selection or inventive authorship of the plastic adopted by Mr. Crouse for his tubular guide.

Mr. Crouse was not qualified as an expert on plastics, and even admitted he didn't know much about plastics when he asked a manufacturer to extrude some suitably hard plastic over his core sample (J.A. 12). Hence, his opinion e.g. with regard to how yieldable Marshall's covering would have to be (J.A. 15, midpage) conveys little conviction.

Moreover, Mr. Crouse obviously knew very little about the Bentley patent, confusing it with insulated electric wiring (J.A. 23). Actually, Bentley's conduit is for appellant's very purpose, and one would normally expect an expert in the Bowden wire art to recognize as much.

E. Appellant's burden of proof.

Under Rule 52(a) of the Federal Rules of Civil Procedure; *Abbott et al. v. Coe*, 71 App. D.C. 195, 109 F.2d 449; *Esso Standard Oil Co. v. Sun Oil Co.*, 97 U.S. App. D.C. 154, 229 F.2d 37; *Zenith Radio Co. v. Ladd*, 114 App. D.C. 54, 310 F.2d 859, appellant has the burden of proving that there is no rational basis in all the evidence before the District Court for its decision agreeing with the Patent Office tribunals in refusing to allow claims 12 and 13.

CONCLUSION

It is submitted that, on all the evidence before the Court, there was a rational basis for the findings of both the Patent Office Board of Appeals and of the District Court, and that accordingly their refusal to allow claims 12 and 13 under both 35 U.S.C. 102(a) and 35 U.S.C. 103 should be sustained by this Court, by affirmance of the order dismissing the complaint in this action.

Respectfully submitted,

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February, 1964.

APPENDIX

35 U.S.C. 102(a)

§ 102 Conditions for patentability; novelty and loss of right to patent

A person shall be entitled to a patent unless—

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for patent, or

35 U.S.C. 103 (except last sentence)

§ 103. Conditions for patentability; non-obvious subject matter

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.

35 U.S.C. 132 (last sentence only)

No amendment shall introduce new matter into the disclosure of the invention.

35 U.S.C. 145

§ 145. Civil action to obtain patent

An applicant dissatisfied with the decision of the Board of Appeals may unless appeal has been

taken to the United States Court of Customs and Patent Appeals, have remedy by civil action against the Commissioner in the United States District Court for the District of Columbia if commenced within such time after such decision, not less than sixty days, as the Commissioner appoints. The court may adjudge that such applicant is entitled to receive a patent for his invention, as specified in any of his claims involved in the decision of the Board of Appeals, as the facts in the case may appear and such adjudication shall authorize the Commissioner to issue such patent on compliance with the requirements of law. All the expenses of the proceeding shall be paid by the applicant.